The RUBBER AGE

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The RUBBER AGE

VOL. 31, NO. 1 APRIL 10, 1932

LATE NEWS of the Industry

Goodyear Board Passes the Quarterly Dividend on Company's Common Stock—

Company's Annual Report Voted at Stockholders' Meeting—All Officers Re-elected—New Director on Board Indicates Chase Bank Influence in Goodyear Affairs

APPROVAL of the annual report of the Goodyear Tire and Rubber Company, for 1931 was voted by stockholders at the regular meeting in Akron on March 28. Eighty-seven per cent of the company's stock was represented at the meeting either in person or by proxy. At the directors meeting following that of the stockholders, the second quarterly dividend of $1.75 per share was voted on the preferred stock but no announcement was made by the board on the common dividend. Three months ago a dividend of 25 cents a share was declared, placing the junior issue on a $1 a share annual basis. Prior to that, a $3 annual rate had been in effect since the fore part of 1931.

In response to inquiries regarding Goodyear's common dividend policy, P. W. Litchfield, president of Goodyear Tire & Rubber Company, stated:

"Present economic conditions do not warrant continued disbursements to common shareholders. No action in this connection was taken by the board. The question will be raised at later meetings during the year or as soon as earnings may warrant."

Earnings of the company suffered severely during the past year as the result of the highly competitive conditions in the domestic market and profits were also adversely affected by the violent fluctuations in foreign exchange which hampered the company's raw material purchases and retarded sales. Sales declined $44,863,000 last year to a total of $159,200,000 while net income before special reserves for fluctuation in foreign exchange decreased 45 per cent from the 1930 results to $5,454,047.

After setting aside $3,414,040 in 1931 for fluctuations in exchange and $711,384 for depreciation in United States and Canadian bonds, the balance carried to surplus was $1,328,623 against $9,912,233 for 1930.

A deficit of $7,649,761 was incurred after dividend payments for 1931 compared with a deficit of $2,842,000 after dividends for 1930. Net income for 1930 was equivalent, however, to $3.16 a share on the common stock while the 1931 net failed to cover preferred dividend requirements.

The executive officers reelected are: P. W. Litchfield, chairman and president; C. Slusser, Charles A. Stillman, R. S. Wilson and Fred M. Harpham, vice-presidents; P. E. H. Leroy, vice-president and treasurer; Z. C. Oseland and H. H. Hanna, assistant treasurers; W. D. Shilts, secretary; F. R. Wahl and W. M. Mettler, assistant secretaries; C. H. Brook, comptroller; C. L. Weberg and H. D. Hoskin, assistant comptrollers.

Members of the executive committee reelected are: George T. Bishop, E. B. Greene, P. W. Litchfield, Col.

Scanning the Headlines

GOODYEAR *passes dividend on common stock and elects Chase Bank official to board . . .* KELLY-SPRINGFIELD *proposes new financial reorganization plans . . .* UNITED STATES RUBBER *sponsors the new Latex Fiber Industries, Inc., in conjunction with the J. P. Lewis Company . . .* FIRESTONE *demonstrates pneumatic rail tire while* GOODYEAR *announces that American rights on the Michelin rail tire have been acquired by them . . . Failure of the Dutch and British to adopt restriction plan is causing crisis in planting industry . . .* PENNSYLVANIA RUBBER *reports profit last year . . . French Government assists colonial planters . . . Tires are costing 59 cents per thousand miles.*

Grayson M-P Murphy, J. R. Nutt, Francis Seiberling, and G. A. Tomlinson.

One change was made in the directorate by stockholders at their annual meeting, R. L. Clarkson, president of the Chase Securities Company of New York, being elected in place of Frank H. Ginn, Cleveland attorney, who did not ask reappointment.

Election of Clarkson was viewed as an evidence of expanding influence in Goodyear affairs by the Chase National Bank of New York, of which the Chase Securities Company is an affiliate. First step in that direction was taken a year ago when loans were made to the Eaton-Otis interests in Cleveland which controlled large blocks of Goodyear securities. Clarkson's appearance on the board however gives the powerful New York banking group its first direct representation in management of the company.

Goodyear Secures Rights to Make Michelin Rail-Tire in United States

ANNOUNCEMENT was made recently by P. W. Litchfield that the Goodyear Tire & Rubber Company had received the first license to manufacture rail-tires in the United States under Michelin French patents.

The rail tire was brought out last summer by the Michelin Company after four years of experiment and has attracted wide attention among railroad men in this country. The Budd-Micheline Company, Philadelphia, is now building special coaches to be used with the rail tires. The first Goodyear tires have been shipped for installation on the new coaches and another shipment will be sent to France this week to be tested out over French railways.

The special Budd-Micheline coaches being built to use rail tires are of stainless steel construction, light and powerful, having a weight of 11,000 pounds as against as high as 150,000 pounds for the big Pullmans. And while powerful steam engines are required to haul a passenger or freight train, the rail tired car uses a 90 h. p. automobile motor, can be started and stopped quickly like an automobile, can be slowed down for curves and crossings, has good ecceleration, and can do up to 100 miles per hour. The lighter weight will be effective, engineers estimate, in cutting maintenance charges on railroad right of ways by a substantial figure.

The Goodyear rail tire being furnished Budd under the Michelin license is a high pressure tire, having 85 pounds air pressure, is attached to the rim like an auto tire, being quickly demountable. The rail tire wheel differs from an automobile rim in that it has a steel flange which holds the tire on to the rail. An internal device prevents the tire from running flat in case of puncture.

Kelly-Springfield Announces Financial Reorganization Plan

CHANGES in the capital structure of Kelly-Springfield Tire Company were proposed in a plan recently submitted to stockholders by William H. Lalley, president of the company.

Provision is made for the following: (1) Each share of the present 6 per cent preferred stock exchangeable for $100 par value in ten year 6 per cent notes, plus two shares of new common stock; (2) Each share of the present 8 per cent preferred stock exchangeable for one share of $6 preference stock, plus three shares of new common stock. The $6 preference stock is redeemable at $102.50 per share; (3) The reduction of the common stock and the issuance of one share of new common stock, $5 par value, for two shares of the old common, no par value.

No new money is required or sought in the recapitalization.

Several months ago a readjustment committee was appointed with instructions to formulate a plan with the primary purpose of eliminating the existing deficit of $9,676,761 and patent and good will items of $7,254,021, totalling $16,930,782.

It was pointed out that the present deficit legally prevented the company from paying dividends out of current earnings and restrained it from retiring any of its stock by purchase in the open market.

The proposed plan would eliminate all accrued obligations for dividends and sinking funds on the existing preferred shares, in addition to eliminating deficit and good will items, and would create a surplus of approximately $3,000,000.

"Thereafter," explains Mr. Lalley, "dividends may be paid by the board of directors as conditions warrant. It would also result in a book value for the new common stock of approximately $9.16."

"The present management," he adds, "was installed about April 1, 1931, and has been able not only to effect very substantial economies but in addition has also greatly reduced in every way the manufacturing and distribution expenses. Our freedom from bank loans and fixed obligations, our extraordinary current ratio of 30 to 1 as of December 31, 1931, our improved product and the greater public acceptance it now enjoys inspire us to ask for your continued co-operation and acceptance of this plan which we feel confident will redound to your benefit."

Mr. Lalley states that a considerable number of the larger shareholders of each class of stock have approved the plan. The Central Hanover Bank and Trust Company is made depository for the stock certificates.

The readjustment committee is composed of the following: chairman, M. B. Muxen, president, Tokheim Oil Tank & Pump Company, Fort Wayne, Ind.; vice-chairmen, William H. Lalley, president, Kelly-Springfield Tire Company; Willis H. Booth, vice-president, Guaranty Trust Company of New York; John M. Hancock of Lehman Brothers, bankers, New York; Otto Marx, capitalist, New York; F. J. Fuller, vice-president, Central Hanover Bank & Trust Company, New York; Frank Wilbur Main of Main & Company, Pittsburgh, Pa.; Stephen Peabody, capitalist, New York; and Arthur Sachs of Goldman, Sachs & Company, New York.

United States Rubber Helps Form New Latex Fiber Industries, Inc.

THE formation of the Latex Fiber Industries, Inc., a new company owned jointly by the United States Rubber Company and the J. P. Lewis Company interests of Beaver Falls, N. Y., was recently announced by F. B. Davis, Jr., president of the United States Rubber Company. The J. P. Lewis Company group is one of the largest and most prominent manufacturers of special paper board products.

Officers of the new company are: Harry S. Lewis, president; R. P. Rose, vice-president; Wilson H. Blackwell, treasurer; D. E. Griffith, secretary; directors: Harry S. Lewis, R. P. Rose and H. W. Waite. Mr. Lewis is president of the J. P. Lewis Company and Mr. Griffith also represents that company. Messrs. Blackwell, Rose and Waite are members of the United States Rubber Company organization.

Products now manufactured by the Fiber Products Division of the United States Rubber Company at Cleveland, Ohio and Rock City Falls, N. Y., will be produced by the new company at Beaver Falls, N. Y. in the Lewis, Slocum

& Le[illegible] Company, Inc. plant, which has been acquired for that purpose and which will be ready for production by June 1. Meanwhile customers will be served from the Cleveland and Rock City Falls plants of the United States Rubber Company. These products, namely, Insolex and Laflex, used in the shoe industry; Lexide, a base material used by manufacturers of artificial leather goods; and various automotive specialties such as panel and fireproof boards will continue to be marketed through the sales organization of the United States Rubber Company. It is planned to manufacture also, a line of specialties for general purposes such as cover, tag and sign paper and various industrial paper and paper boards. These products will be marketed by the J. P. Lewis Company through its present selling organization.

Latex Fiber Industries, Inc., has been licensed under many patents pertaining to the use of latex and fibrous materials owned by the United States Rubber Company and is in a position to grant sub-licenses to paper and paper board manufacturers. It is planned to extend development work on many new types of products made from combinations of latex and fibrous materials, particularly in the fields of paper manufacture.

The new company will have offices at 1790 Broadway, New York City and Beaver Falls, N. Y.

Firestone's Pneumatic Rail Tire Demonstrated Under Severe Tests

FOLLOWING closely on the heels of the Budd-Michelin rail-tire experiments, recently conducted outside of Philadelphia, Pa., the Firestone pneumatic rail tire was given a series of tests over the railway from Miami to Jacksonville, Fla. Traffic experts, viewing the tests, expressed complete satisfation in the performance of the tire, and Harvey S. Firestone, Sr., chairman of the board of his company said the achievement was very gratifying.

For over a year Firestone engineers have been working to perfect a pneumatic tire for this class of work. Florida was chosen for the run because under the blazing semi-tropical sun of the everglades, the tire would be put to an extremely severe test.

Commenting on the accomplishment, Mr. Firestone said that hundreds of miles of railroad tracks unused today will be put into service again through the development of this new type of transportation. He believes that the pneumatic tired wheel will not only be a great boon to the railroad industry in reviving the operation of the unused lines, but that it will bring new speed and comfort in rail travel.

With Clifford D. Smith, Firestone engineer in charge of tire development at the throttle, the car hummed over the 405.7 miles in 378 minutes, elapsed time, for an average speed of 64.39 miles an hour, bettering by 42 minutes the best previous rail run between two Florida cities made over a route 40 miles shorter. Deducting the 31 minutes for stops, the actual running time was 347 minutes or five hours and 47 minutes, for an average speed of 70.2 miles an hour.

Collapse of Restriction Plans Brings Acute Situation to Planters

FOLLOWING the joint announcement of the Dutch and British governments on March 19, that all negotiations on the subject of crude rubber restriction had failed and that the question had been definitely dropped, the price of the commodity on the leading trading centers took a natural decline but rallied somewhat to a steady tone during the last fortnight at 3 cents per pound for the New York market. The trade was apparently prepared for the rejection of the restriction plans and while there is necessarily some anxiety on the part of certain producing interests as to their future, the industry is settling down to conditions as they stand with the thought of making the best of a serious situation,—a situation which, however, has been cleared somewhat by the dispelling of the uncertainty surrounding the negotiations. But the seriousness of the situation from the producers' angle is still acute.

It was reported from London that immediately after the governmental action, producing interests in Great Britain called a series of conferences to consider the situation but nothing in the way of any further plans have been announced.

Symington and Wilson, well-known Mincing Lane brokers, commenting on the causes of the collapse of negotiations for crude rubber restriction, state: "We think it may be fairly taken that the Dutch government found themselves definitely unable to undertake control of native output. Naturally, neither the British nor Dutch government would desire to go into a scheme which might eventually lead to international friction."

They declare that it is to be hoped decidedly that no further negotiations will be attempted and that British producers will completely abandon any hopes of Dutch cooperation. Under existing conditions it is feared that the price of rubber probably will remain low for at least a year or two as, with so much rubber available, it is improbable that any circumstances will arise to induce buyers to pay a substantially advanced price, they state.

They predict that many estates now will have to close down. In addition to those producing companies which

Harvey S. Firestone (right foreground) finds the new Firestone rail tires in perfect condition after they had enabled an automobile running on railroad tracks to set a record between Miami and Jacksonville, Florida. The car, covering 405.7 miles at an average speed of 64.39 miles an hour, bettered by 42 minutes the fastest railroad run between these two cities made over a route 40 miles shorter. With Mr. Firestone is Clifford D. Smith, development engineer, who operated the car.

still have some resources available and which may now decide to place their estates on a care and maintenance basis for the time being rather than to continue production at a loss, Symington and Wilson fear that a large number will be forced to cease operations by exhaustion of funds.

Many smaller estates are reported already to have cabled directions to close down their estates but the amount of rubber production represented by these producers is small. It is unlikely that the rubber production figures from the large estates will show much reduction for the next two months as many estates are withholding final decision on production pending developments in native output at present low prices.

Chicago Rubber Group, A. C. S., Dines and Hears Van Cleef Give Travelogue

THE Chicago Group, Rubber Division, A. C. S., held an interesting meeting on the evening of March 25, in the College Inn in the Hotel Sherman, Chiago. The dinner which preceded the meeting, was attended by over 100 members and guests and was served to the accompaniment of the famous Ben Bernie Orchestra. Between each course an excellent stage presentation was arranged for the occasion. After the dinner the members adjourned to the Grey Room.

The meeting was formerly reported in the rubber trade press as having taken place on March 18, but was postponed to one week later. The program of the evening already appeared in the March 25 issue of THE RUBBER AGE.

Besides an entertaining talk by Noah Van Cleef, member of the firm of Van Cleef Brothers, Chicago, illustrated with motion pictures taken by Mr. Van Cleef himself, in his various trips around the world, featuring plantation properties in the Far East and gold and diamond mining operations in South Africa, another speaker of the evening was F. L. Roberts, manager of the Chicago office of the U. S. Department of Commerce, who spoke on the affiliations of the Department with the rubber industry.

The next meeting of the Group will be during the first part of May, the date and details of which will be announced later.

New Toledo Instrument

MANUFACTURERS of sheet material products, such as the fabrics and rubberized fabrics, can now obtain uniformity in the weight of the processed material, it is claimed, through the Toledo continuous Auto-check device, recently announced by Toledo Precision Devices, Inc. Its outstanding feature of the new instrument lies in a system of continuous control, as contrasted with intermittent control from caliper or cutting weighing tests. In operation, it gives instant warning of any variation from the predetermined standards, and hence eliminates the waste of reprocessed or discarded batches of material.

The Toledo continuous Auto-check is simple in operation. The material to be tested passes over three rollers all in the same horizontal plane. One-half of the material between the end rollers is supported by the middle one. This roller is mounted on the auto-check mechanism, and is the weighing element in the device. The reading resulting is the weight of the middle half of the material. The load to be weighed is counterbalanced by an appropriate beam and poise. A pendulum equipped with a pointer and traveling over a chart indicates any variation from zero or the predetermined standard weight. Operated by the gravity principle, the device is not subject to temperature variations or the physical characteristics of the material used. The indicator is large enough to permit ease of reading at distances up to thirty feet. The Auto-Check is available for any capacity desired and models can be adapted to the material used.

A descriptive folder can be secured from Toledo Precision Devices, Inc., Toledo, O.

World Tire Trade, 1931

EXPORTS of automobile casings from the principal manufacturing countries of the world declined by 24 per cent in 1931, to a total of 6,298,834, as compared with 8,301,451 in 1930, according to Department of Commerce figures.

Purchasing power the world over shrank during 1931, and international trade in tires felt the decrease. In some countries as many as 30 per cent of the motor vehicles are laid up for reasons of economy, in many lands people are running their cars less than formerly, and in all markets purchases of new cars have been curtailed. Although the use of the truck is on the increase, not a few firms, operating fleet of trucks, have stored half their cars, and are taking the tires from these to supply the machines still on the roads. In addition, present day tires do not wear out as rapidly as was the case even five years ago, and the art of tire repairing has been considerably developed. Finally, the further growth of branch factories has meant that thousands of casings formerly entering into overseas trade are now made and consumed locally. Bearing these developments in mind, the fact that the decline in world tire trade did not assume greater proportion is an encouraging sign.

Exports of pneumatic tires from the United States in 1931 amounted to 1,954,865, compared to 2,684,294 in 1930, a drop of 27 per cent. The dollar value of these shipments declined by 33 per cent to $19,676,519 from $29,444,527. During 1930 the principal markets for American tires in order of their size, were Argentina, Japan, Mexico, Spain, Denmark, Hawaii, Cuba, the Philippine Islands, British India, and the Netherland East Indies. In 1931 British India became the largest market, taking 162,985 casings, an increase of 47 per cent over the year before. Truck and bus casings were largely responsible for this grain, increasing by 62 per cent, to 59,755. Denmark took second place, with 141,826 tires, an 11 per cent rise, and Hawaii was next, with 133,804 casings, an increase of 10 per cent. Brazil, a fast growing American market, was fourth with 98,270 tires, a 16 per cent increase, followed by the Netherland East Indies with 92,632.

In 1930, when Canada exported 1,376,048 pneumatic casings, having a value of $12,773,773, Argentina was Canada's largest customer, taking 202,096 tires during the year. New Zealand came next, then Denmark, British South Africa, Brazil, and Belgium. During 1931 Canada sent only 741,804 automobile casings abroad, valued at $5,870,121.

Exports of Automobile Casings by Major Producing Countries

[NUMBER]

Country	1928	1929	1930	1931
United States	2,692,896	2,979,438	2,684,294	1,958,498
Canada	1,674,553	1,746,950	1,376,048	741,804
France	1,812,405	1,478,080	1,169,880	1,020,490
United Kingdom	880,296	1,282,622	1,385,286	1,166,792
Italy	791,573	862,982	644,814	[1]567,100
Belgium	520,283	655,225	578,080	498,179
Germany	180,193	301,339	302,122	190,871
Japan	206,854	227,312	198,927	[2]155,100
Total	8,759,053	9,533,948	8,301,451	6,298,834

[1]Estimated from 10 months' figures.
[2]Estimated from 11 months' figures.

(Other news of the industry will be found on Pages 27-33)

A Visit to FORDLANDIA

Rubber Plantation Project Started by Henry Ford is Developing Rapidly—New Model City Being Built in the Heart of Brazil

By A. OGDEN PIERROT

Asst. Commercial Attaché, U. S. Dept. of Commerce

One section of the nursery on the plantation. A nursery stock of 1,200,000 seedlings is now being maintained

FORDLANDIA, the rubber plantation project of Henry Ford in the heart of Brazil, is located about 160 miles up the Tapajoz River, on the east bank. This river is one of the largest tributaries of the Amazon entering that river from the south. The town of Santarem is situated at the confluence of the Tapajoz and the Amazon, and is approximately 600 miles from Pará. Thus the trip from Pará to the Ford property is one of some 750 miles, and is made in from four to seven days, depending upon the mode of transportation employed. On occasions the trip has been made by officials of the company by plane in slightly more than six hours.

The concession held by the Ford company (known as the Cia. Ford Industrial do Brazil) is roughly forty miles long and reaches nearly that deep into the back country. Though numerous expeditions have been sent out for the purpose of cutting trails into various parts of the property, there are still many square miles that have not been visited. Except for small settlements along the river front this entire area is under Ford management—the small settlements of one or two houses having existed for many years and having come into the possession of the residents through occupancy, and the recognition in Brazil, as in most countries, of "squatters' rights."

The visitor to this property, which by the way is universally known in the Amazon district as Boa Vista, is astounded on rounding the last bend in the river before reaching the town, to see the marvelous accomplishment of but two years' work. A panaroma lies before his view of a stretch of several miles along the river that has been denuded of forest growth, and which exposes the rising land which, beginning at the river's edge, climbs to some two hundred feet at a distance of about a mile from the river. The only large growth left standing in this area is a scattering of castanha (Brazil nut trees) and assahy palms.

Along the water's edge there are a hundred or so palm huts of the characteristic Amazon type. In this lower area there are also to be seen long low structures of wood

Looking Across Cleared Areas to the Tapajoz River. The Houses are Those Used by the Native Laborers and Their Families. To the Right is the School House.

The Power Plant of the Plantation which is Capable of Supplying all the Needs of the Project. It Houses Four 290-H.P. Boilers in Addition to Generators.

construction which upon investigation later prove to be well-built barrack rooms for unmarried laborers, stores, restaurants, administration buildings, etc.

Somewhat higher above the river are to be seen the straight, well-planned streets lined with bungalows of approved American type, with such changes made in their plan as to conform with tropical requirements. There are roomy two-family houses for the use of the married laborers as well as for the technical and clerical personnel.

Modern Developments at Boa Vista

The eye of the first-time visitor to the property does not dwell on these constructions long when the view is had from the deck of a river steamer approaching Boa Vista, for the imposing structures of the industrial section of the town, with the tremendous water tank and the smokestack of the power house, catch the view and create a sensation of real wonderment. This is not unusual when it is considered that for several days the only signs of life that have relieved the monotony of the trip have been occasional settlements consisting of two or three thatched huts against a background of green jungle. A feeling akin to disbelief comes over the visitor on suddenly seeing projected before

General View of the Plantation Hospital and a Group of the Staff Houses in the Middle Ground. Terraced Sections of the Plantation are Shown in the Foreground.

him a picture which may be considered a miniature of a modern industrial city. Smokestacks belching forth a heavy cloud formed by waste wood used as fuel, a locomotive industriously puffing along ahead of flat cars laden with machinery just received from the United States, steam cranes performing their endless half turns and reverses for the purpose of retrieving heavy cargo from the holds of lighters moored alongside the long dock, heavy tractors creeping around the sides of the hills dragging implements behind them for loosening and leveling the earth, others heaving at taut cables attached to stumps of tremendous proportions—all combine to increase the astonishment caused in the uninitated visitors to this district, who had no conception of what had been accomplished in the brief space of slightly over two years.

Looking inland a network of roads will be seen, over which trucks wend their way. From any of the hilltops near the river an excellent perspective can be gained of the rather roughly rolling country. In some directions it is possible to see back for several miles and the tops of the hills, which tend to become higher as one looks farther inland, are peopled with workers. Although they cannot be seen from this vantage point, the small valleys are likewise scenes of activity. In these areas of cleared land the laborers are busy at their occupations of setting out small seedlings of the rubber tree, or performing the many other duties in connection with the plantation development.

Ordinarily the only connection of Boa Vista with Pará is the semi-monthly steamer service, operated by Dr. Leonidas de Albuquerque under contract with the Ford Company. The arrival of the boat from Pará with mail, new food supplies, additional equipment for the furtherance of the work, etc., is always an occasion in this outpost of civilization, particularly for the American staff, and as a result, the visitor is enabled to meet most of the administrative personnel on the dock at the moment of arrival. This group is composed of men recruited almost entirely from the ranks of the Ford organization in the United States and since the primary task confronting the company was a construction matter, the head of the operations at Boa Vista, as well as the manager of the entire project located at Pará, is an engineer of long experience with the Ford Company. Mr. Johnston, the recently appointed manager who controls the Cia. Ford Industrial, comes to Brazil fresh from the work of supervising the construction of several plants during recent years in Europe. Mr. Rogge, in charge of actual operations at the plantation, has behind him a long record of efficient operation of saw mills. The greater part of the remaining dozen Americans on the job were transferred from various Ford activities in different parts of the world. The medical corps, consisting of Drs. Beaton and Smith, was transferred from the Henry Ford Hospital in Detroit.

American Staff Buildings

The word hospitality takes on a new meaning after one has spent a few days on this property. The American staff live in a half dozen large bungalows which lack none of the essentials for a perfectly comfortable existence. These houses, just as in the case of the several hundred dwellings built for the laborers, are entirely screened. Large porches surround the buildings and add to the comfort of the occupants during the warm afternoons when the sun is overhead. Every house built on the property is equipped with running water which is filtered and chlorinated, the most up-to-date bathrooms and electricity. The staff houses are equipped with radio loud speakers through which the American short wave programs are brought to the colony every night by the radio station on the property. Electric refrigerators complete the equipment of these staff houses.

The entire population of Boa Vista is now approximately 4,000. There are in the vicinity of 1,500 laborers with their families, in addition to the technical and administrative personnel. Prior to December, 1930, twice that number of laborers were employed, but the events of December, involving an uprising by several hundred of the workers as a result of agitation carried on by communistic elements, resulted in the discharge of the entire force, and since that time great care has been exercised in re-employing labor with a view to eliminating the shiftless and vicious types that occasionally present themselves.

Change in Native Living Conditions

It is difficult for the person who has not traveled in Brazil's interior to fully appreciate the effect of this project on the well-being of the population of the lower Amazon. The "caboclo" as the Amazon type is generally called, is a mixture of Indian and Portuguese with a considerable admixture of negro blood. He is, in general, a childlishly sincere individual usually remaining for a lifetime with his "patrão" or owner of the property on which he is born and raised, and for whom he works at tapping rubber, felling timber, cutting the latter into firewood for sale to the passing steamers and such other tasks as the master may have for him. For his efforts he is credited on the books of the "patrão," who operates the only store on

the property, with the simple necessities of life in that region. An example of the rate at which these people are remunerated for their effort is the loading of wood fuel aboard river steamers. At any hour of the day or night the steamer may tie up at the wharf of the "patrão" and several prolonged blasts of the steamer's whistle bring a dozen or so caboclos from their huts located a few miles up and down the river from the wharf and headquarters of the small trading center. With only a burlap bag as protection for their shoulders, ten heavy sticks of this wood are carried on each trip from the woodpile to the boat over a bending, dancing plank. Each stick weighs in the neighborhood of five kilos, and for transporting this load, exceeding one hundred pounds in weight, the caboclo receives fifteen reis. At that rate of pay it is necessary for the caboclo to work practically all day or all night to earn 1$500. (Milreis = 0.710 in July, 1931).

Imagine, then, the coming into this region of an employer who has established a minimum wage of 9$000 daily for eight hours of work under the most satisfactory conditions possible in that territory. It is almost impossible to grasp the full import of this venture to the population of the Amazon valley. A fair percentage of the workers receive a wage in excess of the minimum and the average is believed to be in the neighborhood of 12$000. Thus the laborer draws an average of 300$000 monthly, not more than a third of which has to be spent for food. The company originally supplied meals in a well-constructed restaurant of tremendous proportions for less than the cost of the food and preparation, but a steady effort is being made to place the business of supplying food to the workers in the hands of private concessionaires whose prices must be kept only high enough to allow of a minimum profit.

Modern Houses for Native Laborers

The married laborers are urged to live in the modern houses built for them but there are many who prefer to remain in their huts by the river—palm thatched shelters with dirt floors—in preference to the frame houses with screened windows, running water, bathrooms and electric lights. To the laborer living in these new houses the rental is 110$000 per month, but the amount is not actually paid by the laborer inasmuch as his salary is increased by that amount in the event that he lives in one of these houses.

As can be imagined, these working conditions proved too much of a shock to many of the workers first employed. A fair number disappeared after their first pay day with more money than they had ever seen at one time, and after more than two years have failed to put in another appearance. Those now employed, however, have been practically hand picked, and are for the most part a serious and very contented group.

One of the first tasks of the engineers was the work of sanitation. For several months a goodly share of the total number of laborers was kept busy on drainage and filling work. The result is that today one sees practically no mosquitoes in the area where work is being carried on.

Efficient Hospital Facilities

A hospital was one of the first structures built, but a larger and better-built hospital building has just been completed. A staff of trained nurses is on duty there in addition to the two doctors from the United States and a Brazilian physician. The hospital is well equipped and its work has proved a Godsend not only to the workers on the property but to all ailing persons throughout the entire valley who have been able to secure transportation to Boa Vista. All medical and other treatment in the hospital is free and it is not unusual for patients to arrive by canoe paddled by members of their family after trips of several hundred miles. Passing boats leave ailing members of their crew on the company's wharf and often blithely resume their voyage without making known to the hospital that they have added to its list of patients.

The medical staff maintains a close inspection of the property for the purpose of preventing any impairment of the sanitary conditions. Stagnant water is the principal object of attack by this staff, and the rigorous care has been well rewarded by the steady diminution of malaria cases. Hookworm has been rather successfully handled by the only effective treatment of encouraging the wearing of shoes. It is interesting to note that when the company first began operations no more than one or two per cent of the caboclos wore shoes, whereas at least ninety per cent now own leather footwear. The visitor can scarcely repress a smile at the sight of the laborer returning from the fields in the evening with his work shoes strung over his shoulder, and not until he has tidied himself with a shower and change of clothes does he step into his "best" shoes.

A model school building has just been completed and a teacher employed to classify the children and arrive at a basis for the beginning of their educations. An employe

Machine Shop and Sawmill. The Railroad in the Foreground Leads to Clearings 3½ Miles Distant. The Sawmill Has a Capacity of 90,000 Board Feet Per Day.

Modern Steel and Concrete Hospital with a Capacity of 100 Beds. Weekly Examination of All Laborers and Other Sanitary Regulations are Enforced.

with an interest in young boys has been encouraged by the company in forming a boy scout troup, and on the occasion of our visit this group drilled in its new uniforms with indescribable enthusiasm.

The principal activity in Boa Vista, aside from the clearing of land, is the milling of lumber. The saw mill that has been set up on the banks of the Tapajoz is unquestionably the finest in the north of Brazil. At present it works with logs cut on the property and turns out large quantities of various species of woods valuable for building and other purposes. Up to the present the output of the mill has been utilized in the building of homes for the workers and in other constructions, but the time is approaching when the company will be in the market with its lumber.

There are six dry kilns for the drying of lumber. Thus a quality of wood will be supplied which should be readily marketable in competition with the uncured wood which proves so unsatisfactory for building purposes due to warping.

Large Modern Power Plant Built

The powerhouse is everything that one might expect in such an installation. Wood is burned as fuel, and the capacity of the plant is sufficient to take care of any growth that may ever develop in that section. At present the illuminaion of the homes, offices, saw mill, streets and the electric current used for operating the machinery requires but a small part of the output of the plant.

The section of the town given over to shops is particularly animated in the early morning hours. The housewives who for the first time in their lives know the joys of shopping are to be seen moving from store to store and finally emerging with market baskets of conventional design filled with groceries. This is a considerable transformation from the erstwhile occupation of these same women of gathering a few bananas from the small plot behind the hut on the edge of the jungle and serving them with whatever fish the male members of the family may have caught, plus a bit of mandioca in the event that their credit for the same was good at the small store of the "patrão."

A jeweler who was forced to close down in Manaos due to dullness of business stated that his sales of watches had never been so satisfactory elsewhere.

An idea of the money spent in Boa Vista may be gained by considering the number of workers (1,500) at the average wage of 12$000 per day. It is believed that this town has more wage earners at present than any city in the Amazon with the exception of Pará.

The primary object of the enterprise, the planting of rubber, of necessity has been given comparatively little attention until the past year. The clearing of the several thousands of acres of land that are now available for planting was a gigantic task, and in order to conduct that work the company very intelligently concerned itself first with the establishment of suitable living quarters for the labor and the sanitizing of the district. Now, however, large areas of level ground are being planted to rubber, and once the small plant attains a height of something more than a foot it is transported from these seed beds to the prepared land. Mr. Pringle, in charge of the rubber planting, came to the Ford property from Liberia, where he had been connected with the Firestone enterprise. According to this specialist, the Tapajoz land is very similar to the Firestone property in point of soil but the African venture is on less hilly terrain.

During the last three years approximately 3,000 acres of land have been planted to rubber. Due to the fact that the seed beds have only recently been established, that area was planted with seed instead of with seedlings, and various factors entered to prevent the complete success of the first plantings. One of these was difficulty in getting seed to the property that had been carefully chosen in an up-river district due to an embargo placed on the seed while in transit through the state of Amazonas, the government of which state resented the failure of the enterprise to locate in is territory. Another difficulty was the grasshoppers which have a fondness for the tender foliage of the seedling when it has attained a height of a few inches, which kills the young plant.

The hilly nature of the land has also proved a drawback to normal progress but a system of terracing along the sides of the hills has largely solved this difficulty.

During the past year some 1,080 acres of new land were set out with seedlings. These plants are proving to be hardy and during the years just ahead a great deal more speed will be made toward increasing the acreage, for about 1,200,000 seeds have just been planted, and still larger numbers will be planted next year.

Future of the Project

There is little question but that at the end of seven or eight years the Boa Vista property will be an important factor to be reckoned with in the rubber industry for at that time its production will make its weight felt in the world's markets, even though it will be small until the plantings of the next few years reach tapping age. However, regardless of the value of the rubber production of this property or of its production of subsidiary articles such as lumber, fibers, etc., the real value insofar as Brazil is concerned lies in the effect that this enterprise has had on the population of that paradoxically rich but barren territory. A standard of living has been established that is certain to spur the workers of the region on to increased effort in the future, for certain it is that the caboclo now on the payroll at Boa Vista will never again be content with the old existence that was his heritage.

Universal Testing Machine

THE Tinius Olsen Testing Machine Company, Philadelphia, Pa., have recently introduced a new model of their universal testing machine, incorporating several distinctly new features, including the automotive quick change four-speed reverse gear box drive. The gears are always in mesh and can be shifted without operating any neutral control lever.

By means of the hand wheels at right of the gear box, the machine may be operated by hand when desired up to its full capacity for applying very fine increments of load to specimen or for any hand adjustment of the moving cross-head when desired.

The dial is not hydraulic, but is mechanically operated under control of a lever and a pendulum primary weighing system. The dial is large and pointer can make two complete revolutions, providing equivalent to two dials in one, and enabling operator to read correspondingly small increments of load.

The weighing table rests on knife edges in levers. Through a system of levers the load is transmitted to a pendulum on back of upright housing at rear of dial. The amount of movement of this pendulum is shown by pointer on dial which is marked so as to read direct the number of pounds load being applied to test specimen. On the dial are two pointers, one of which moves forward or backward constantly as load is increased or reduced. The second pointer is drawn forward by the first pointer and always indicates the maximum load which has been applied to specimen. The yield points are thereby shown clearly and when specimen breaks the second pointer remains at breaking load until set back by the operator.

The autographic attachment shown at the right of the dial uses standard sheet of cross section paper 8½" x 11" and automatically provides a record of each test.

What are the Prospects for the TIRE INDUSTRY in 1932?

No Curtailment in Production is Foreseen — Profits Should be Higher in View of Readjustments and Lower Material Costs—Replacements of Tires are Inevitable During the Current Year -- Tire Industry Today Compares Favorably With Other Industries

THE automobile tire industry is often regarded as one of our business barometers, since in the past it has forecast swings of general business activity with a fair degree of fidelity.

The fact that the index of the tire business today stands at a higher level than that of general business may be of interest to those who are watching for signs on which to predicate a resumption of general business activities.

There is reason to believe that if tire production in 1932 is comparable to that of 1931, the situation of the large tire companies with respect to net earnings will be somewhat improved. This belief is founded first on the fact that production costs in the tire industry, as in most other industries, have been reduced so that more satisfactory earnings may be expected on equal volume, and second on the fact that in 1932 as in 1931 a larger share of the sales of the tire companies will be in the more profitable replacement field and a smaller share in the original equipment field where profits are small or non-existent.

Tire Industry Compared With Others

To say that no greater production may logically be expected in 1932 than was had in 1931 is by no means as pessimistic when applied to the tire industry as it might be applied to almost any other industry, for the tire business did not show the drastic curtailment last year that many lines of business did. Its showing for both 1930 and 1931, for instance, has been much better than that of the automobile industry with which it is allied.

Totals of car and truck production in 1930 showed a 37.5 per cent decline over the 1929 figures. Tire production declined but 22.5 per cent. For 1931 car and truck production figures dropped approximately another 30 per cent, but the decline in tire production was but 9 per cent. The tire business, after two successive years of depression, is still running at better than 70 per cent of 1929 totals; and there are few manufacturing businesses in the country which can make an equal boast.

The statement that no increase in production may be looked for is founded on a very simple set of facts. Automobile tires can only be sold for cars which are in operation. The number of cars and trucks in use in 1931 was in round figures half a million less than in 1930. Car and truck manufacturers are predicting a half million increase in production for 1932 over 1931. Assuming that the increase is achieved, and that the rate of scrappage of old cars is no greater in 1932 than in 1931, the increase would no more than hold the total number of cars in use during 1932 to the 1931 figure. The tire business, from the standpoint of present and future markets, is not so closely allied with automotive production as it would seem at first glance. In truth it is more similar in its market situation to the oil business than it is to the car and truck manufacturing business, in that its markets, like those of the oil business, are dependent on the use of cars, whether they are new or old.

When the individual motor car owner, because of a decreased income, decides to make the old car do for another year or two, his decision removes him definitely from the motor car manufacturer's market. He remains as good a customer for the oil business as he has been, however; and for the tire business, he is transferred from the original equipment side, in which there is little profit, to the replacement side, where there is a greater margin.

Deferred Purchasing and Tire Sales

Deferred purchasing affects the tire business as well as the automotive manufacturing business, because the man who cannot afford to buy a new car will not buy anything new for the old car until he has to. But it does not affect the tire business so greatly, because the reserve of unused mileage in a tire is not so large as the unused mileage in a car. Up to the point where delayed buying seriously affects the total number of cars in use, it may be a good thing for the tire business because it may mean that a given car will use one more set of tires in its life than it would under conditions which brought about its abandonment in previous years.

The effect of the delayed buying of cars is seen in the reapportionment of sales in the various divisions of the tire industry. In 1929 renewals took 66 per cent of the tire output, original equipment sales 30 per cent and exports 4 per cent. The sales of new cars were greatly reduced in 1930 and in that year renewals took 70 per cent of the new tires sold, original equipment took 25 per cent and export sales took 5 per cent. For 1931 there was another marked decline in new car sales and a further readjustment of tire sales. Renewals then took 76 per cent of all the tires produced, original equipment 20 per cent and exports 4 per cent.

Renewal Tire Sales

The 1930 total of renewal sales was in round figures 16 per cent under the 1929 figures, the original equipment sales 36 per cent and export sales 11 per cent. For 1931 renewal sales dropped only 1.5 per cent from 1930, original equipment sales dropped approximately 28 per cent and export sales were 18 per cent smaller.

Forecasting tire sales a year in advance, or even more, would be a comparatively easy matter were it not for the constantly increasing mileage being built into tires, the constantly improving quality of road surfaces traveled, and the variable age at which cars are actually junked and removed from the tire market. Using the accepted statistics of the average life of cars and a carefully estimated table of the life of tires, an ingenious method of computing the number of cars available for renewal tire sales each year has

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been worked out. But mileage quality has been improved so rapidly that actual sales for recent years have fallen some 25 per cent short of calculated requirements. For 1931 the calculated number of replacements, plus the known production of new cars, would have brought a total sale of more than 64,000,000 tires while as a matter of actual fact the 1931 tire sales were under 50,000,000. Using the same basis of calculated renewal requirements and the automotive trade's estimate of a 3,000,000 car production, with a 25 per cent shrinkage, would show a 1932 total 2 or 3 per cent higher than the 1931 production, but the tire makers are not banking on it.

The improvement in quality of all tires and the increasing proportion of heavy duty tire sales tend to discourage a hope for increased renewal sales. On the other hand there has been a considerable increase in the sale of tires which are bought on price alone. The man who would buy nothing but high quality tires under ordinary circumstances has possibly felt that the cheapest tire obtainable would keep him going until circumstances would permit him to buy a new car. While these tires built to supply the demands of the most economical buyers are superior in quality to the best tires that could be made a few years ago, they still will not compare in mileage with the better grades of today. The increased number of the low-priced tires which have been sold in the last year or two will tend to bring motorists into the market again, possibly offsetting a considerable part of the 6-ply or heavy duty tire sales.

Improved Manufacturing Conditions

Most of the technological advance in the tire industry in recent years has had to do with processes to better the product or decrease the cost of making it. Improved factory methods, together with some wage readjustment, have put the industry in position to show better earnings on equal volume. This, taken with the fact that production volume appears likely to continue, makes the outlook for the tire industry fairly encouraging. One technological improvement in the way of a new product has advanced to the marketing state, although there is little likelihood of its having much effect on 1932 business for the tire industry as a whole. This is the new tire employing extremely low pressures. Called by different names, tires employing this advanced principle are being produced by several tire companies. There is little doubt that the tire of lower pressures will be employed increasingly in the next few years. The balloon tire now in standard use went part of the way in increasing riding comfort, improving the grip of tires on the road, and decreasing road shock and vibration as an element of wear in the car. The driving public will doubtless welcome still lower pressures.

It seems probable, however, that lower pressure tires will make their greatest headway when they come as original equipment on new cars.

While the new tires may mean a sizable business for some companies in a position to manufacture them, it is unlikely that they will constitute a major factor in the industry as a whole in 1932. In another year or two they may come into use as original equipment on cars designed to carry them, and then the tire industry again will see the shift in sizes which accompanied the introduction of the present balloon tire several years ago.

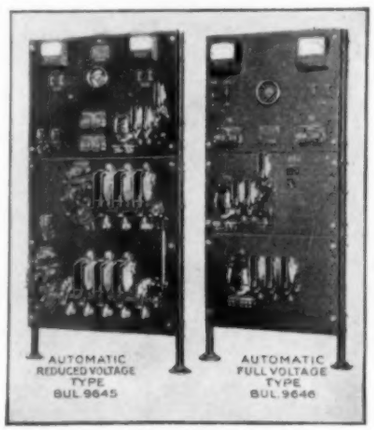
Gelowax

A NOVEL wax called Gelowax has just been introduced by the Glyco Products Company, Bush Terminal, Brooklyn, N. Y., which differs from other waxes in that there is a wide spread between its softening and melting points. One grade has a softening point of 60°C. and a melting point of 88°C. When melted this wax is gelatinous in nature and because of this high viscosity when molten does not run or drip as readily as other waxes. Chemically it is a treated straight chain hydrocarbon which does not saponify or emulsify. It is of a light yellow to white color and more soluble in hydrocarbons and chlorinated solvents than other waxes. In spite of its high melting point, it is plastic and has a good tensile strength.

Starters for Synchronous Motors

A NEW line of automatic and semi-automatic starters for synchronous motors is announced by Cutler-Hammer, Inc., 325 N. 12th St., Milwaukee, Wis.

An important feature in the operation of these new starters is a frequency responsive relay which functions in connection with an adjustable time delay thermal overload relay. In the case of either heavy overload, reduced line voltage, failure of motor field, or loss of D.C. excitation, the frequency relay disconnects the field switch and permits the motor to operate as a squirrel cage motor for a period of about 30 seconds, depending upon the setting of the thermal overload relay. Should normal conditions return within the time adjusted for, the motor will resynchronize and continue in operation—otherwise, it will be disconnected from the line. This frequency relay also controls the field excitation automatically and on the reduced voltage automatic type, it governs the transfer from low starting voltage to full voltage.



These new starters are made in sizes from 25 to 600 h. p. for voltages of 220, 440, 550 and 2,200 volts. Descriptive bulletins can be obtained from the manufacturer.

Low Pressure Tire Gauge

A LOW pressure tire gauge, designed to test the new extremely (large air volume) low pressure tires, has recently been announced by A. Schrader's Son, Inc., Brooklyn, N. Y. The gauge, built on the direct action principle, is calibrated from 5 to 25 lbs. in one-pound units, with an

easily read flat bar indicator. To assure a better finger grip, a specially ribbed ball foot is used. Accurate tire pressures are important with this new low pressure type of tire. Variation of two or three pounds may mean a good percentage of the total pressure. With the new instrument, one can quickly tell when a few pounds under, on or above these recommended low pressures.

India's Tire Trade

THE effects of the world-wide stagnation of business have been felt more keenly, perhaps, in India than in other countries more highly industrialized. The comparative lack of local manufacture necessitates the exchange of raw materials for finished products from abroad. Tires are not manufactured in India.

That the potentialities of the Indian market have been over estimated by automobile and tire manufacturers is evident, in spite of substantial annual increases in imports during the past few years. Less than one-fifth of 1 per cent of India's 350,000,000 population, including Europeans, Anglo-Indians and Indians of means, attains to a standard of living permitting ownership of motor cars. Good road development has been slow, there only being some 65,000 miles suitable for automobile traffic. Assuming 175,000 motor cars to be in operation, the average becomes three automobiles to each mile of improved highway.

The demand for automobile tires and tubes in 1930-31 fell 25 per cent in value from the preceding year—26,795,-454[1] rupees to 20,101,705 rupees. Imports from United States and Canada slumped to 8,919,458 rupees, from 12,471,354 rupees during 1929-30, but our proportion of the total remained practically stationary. England and France were the heaviest losers during the 1930-31 period, their exports of tires and tubes falling from the preceding year, at 7,483,061 and 1,579,450 rupees, respectively, to 3,927,591 and 646,409 rupees. Germany and Italy's exports to India during 1930-31 amounted to 1,712,-452 and 1,342,500 rupees as compared to 2,215,858 and 2,246,363 rupees in 1929-30.

According to figures available for the eight months ended November 30, 1931, the United States continued to control close to 50 per cent of the Indian tire market, with Canada becoming a minor figure in the trade. England is still the second most important exporter of tires to India, while Italy and France are gaining at the expense of Germany. The total value of tires and tubes imported from March 31, to November 30, 1931, equaled 11,220,857 rupees, or a decrease of 3,002,018 rupees under the corresponding period in 1930.

England's suspension of the gold standard and the linking of the rupee to pound sterling adversely affect American goods approximately 30 per cent when competing with similar British imports. American tire manufacturers by price agreement continue to control the Indian market, but on every dollar of remittance to home office they are now losing the equivalent of 1 rupee. As viewed from this aspect, prospects for the next few months seem decidedly unfavorable.

[1]The rupee (at par = $0.3650) equals $0.275 at present rate of exchange.

Safety Council Plans

ON THE sound and praiseworthy theory that every industrial concern is entitled to the benefits of organized accident prevention the National Safety Council has just announced a practical plan for spreading the gospel of Industrial Safety throughout the length and breadth of the land. Every company, large or small, regardless of whether it holds membership in the Council, can have that organization's help in establishing a definite working plan for a continuous campaign of accident prevention.

The safety work of several thousand industrial members in all industries has recently been analyzed and their most effective technique will be made available to any plant desiring a specific course of safety procedure without cost. The sole obligation on the part of the employer will be to provide a few essential facts from which Council engineers can draw up a practical working plan commensurate with the needs of the company and applied to the specific operating problems.

Also as a result of this survey a new service is offered by the Council to old and prospective new members. It is known as the "Complete Industrial" service and is exactly what its name implies—adequate, sufficient, all-inclusive.

Industrial Safety Trophy

It represents a high standard in safety technique and reaches not only management, key safety men and foremen, but also every employe.

A description of the new service may be pretty well summarized in one word, "personalized." In the past, warfare on accidents has been directed mainly by foremen and safety engineers. The new plan takes cognizance of the fact that it is really everybody's business. Every person connected with the plant becomes a sort of stockholder in the work. His interest is awakened and sustained through a twelve-month schedule of safety contacts.

For example, inter-department or inter-group safety contests have played an important part among companies conducting the most successful safety programs. Through this new service the Council provides its new Industrial Safety Trophy, an attractive heavy bronze plaque 7½ x 11½ inches, to be awarded the department or group winning the year-round safety contest within the company. The trophies are provided for display throughout the year and at the conclusion of the contest are inscribed and presented with proper ceremony to the winning group. In this way every employe has a definite, intimate part to play. A new trophy is provided annually.

Booklets

TESTING MACHINES. Published by Baldwin-Southwark Corporation, Phila., Pa. Bulletin No. 28. 36 pp. 1932. For free distribution.

Catalog describes the Southwark-Emery testing machines and with the supplementary data, constitutes a short textbook on hydraulic testing apparatus.

METALINE OILLESS BEARINGS. Published by Spadone Machine Company, New York City, N. Y. 1932. 16 pp. For free distribution.

The booklet contains a description of the manufacture of Metaline Oilless Bearings and their application to various types of machinery, including rubber machinery. A table of standard dimensions of Metalined bearings is included.

EDITORIAL COMMENT

The Eulogy to Restriction

INTERESTING comment comes from England since the declaration on the part of the Dutch and British Governments that they were not in a receptive mood to impose another restriction scheme upon the industry at this time, in spite of the dire situation which undoubtedly confronts the producing interests. Irrespective of the delicate situation resulting from the native rubber industry in the Dutch East Indies, both governments remembered with distressing recollections the troublesome imposition of the regulations of the Stevenson Scheme. The inelasticity of the scheme finally defeated the whole project. It was not the growth of the native production in the D. E. I., nor was it any real total lack of cooperation from the Netherlands East Indies that defeated the Stevenson plan. It simply was not flexible enough to meet rapidly changing conditions.

Restriction plans died a natural death. They could not stand the rigorous conditions of a world-wide depressed situation, plus the low production costs of rubber, coming from native areas in the Far East.

In discussing the decision of the Dutch and British negotiators in the House of Commons, immediately after the breaking off of the conversations, Sir Philip Cunliffe-Lister, Secretary of State for the Colonies, stated that the discussions of the whole position had been carefully reviewed in order to test the practicality of any of the proposed schemes. The conclusion reached was that the practical difficulties were such as to preclude the adoption of any plan of restriction. It is stated that over 40 schemes out of 140 submitted were carefully considered.

After all, the *India Rubber Journal* has the most sane statement on the whole subject, when it says:

"In spite of many complexities, certain fundamental facts emerged in the negotiations, on which all those who took part were definitely agreed. The first of these was that a scheme which failed would do much more harm to the rubber industry than no scheme at all. The second point of the agreement, which was considered as vital, was that no scheme would be of any use which would not restrict production all round, affecting both natives and plantations. Thirdly, it was agreed that any scheme must reduce production to such an extent that within a reasonable time the existing stocks of rubber could be reduced to normal proportions and a position of equilibrium reached as between supply and demand."

The Dutch and British negotiations fell down under such fanciful prospects and in view of existent economic conditions. Under normal economic conditions there would have been no necessity for any thought of restrictive measures.

Spreading Work to Give Work

HOW several producers of rubber products have spread work among their employes, is told in a report written for the President's Organization on Unemployment Relief, and being sent to industrial firms in all sections of the country.

Shorter hours per day or week, staggering of shifts, shorter shifts in continuous operation, rotation of days off, and similar expedients have proven successful in many industries, the report reveals. Numerous examples are cited to show the latest practice as progressively developed during the past emergency in a commendable effort to give work to as many as possible.

Among the rubber firms cited in the report is the Goodyear Tire and Rubber Company, Akron, Ohio, which explains its plan for spreading work by setting a maximum work week of 30 hours. When it becomes necessary to increase production above that point, new employes will be hired as long as there are unemployed people in the city capable of doing the work. The Goodyear plan among hourly and piecework employes has been applied so that when work diminishes the hours of production are decreased and all employes retained on the payroll.

By a similar plan, the B. F. Goodrich Company provided work for several hundred employes previously laid off in addition to keeping on the payroll a 25 to 35 per cent excess man power carried through 1931. Each division head arranges schedules so that each employe will obtain between 30 and 40 hours work per week.

The Inland Manufacturing Company, makers of steering wheels and rubber parts, likewise has established maximum and minimum weekly hours to spread work. Between 24 and 32 hours per week are worked, the average being about 69 per cent of the 1929 level. The number of employes has been increased 25 per cent by this method.

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

PENNSYLVANIA RUBBER MAKES NET PROFIT, 1931

At the annual meeting of stockholders of the Pennsylvania Rubber Company, held March 31, at Jeannette, Pa., W. O. Rutherford, president of the company, reported a net profit of $162,232 for operations during the fiscal year just ended. This amount was added to surplus and was figured after providing for depreciation, taxes, insurance, interest and all other charges. Raw material and finished goods inventories were valued at cost or market, whichever was lower.

Despite a shrinkage in unit shipments by the rubber industry and unprofitable operations on the part of the industry in general, the Pennsylvania company's net represents a 35 per cent increase in sales in 1931 over 1930. This was achieved in spite of a 20 per cent reduction in selling prices, the dollar sales volume topping that of the previous year by 8 per cent.

Mr. Rutherford stated that the outlook for 1932 was encouraging and with its new line of tires and new tennis ball, predicted a strengthening of the company's position in its tire, tennis ball and tube business.

At the meeting all directors were re-elected, as was the official personnel, as follows: W. O. Rutherford, president; W. A. Atkins, vice-president; A. C. Bowers, vice-president; C. G. Morrill, treasurer; C. H. Wolfe, secretary.

Eclat Shows Progress

The year 1931 proved to be a banner year for the Eclat Rubber Company, Cuyahoga Falls, O., according to a recent announcement by E. C. Reiss, newly elected president of the concern, at the annual meeting of stockholders on March 17.

"Sales," he told stockholders, "were 60 per cent greater in dollar volume than they were in either 1928, 1929 or 1930. The company's profits were satisfactory, and additions were made to the surplus fund despite generally adverse conditions."

Mr. Reiss did not announce the amount of sales.

Stockholders elected a new board of directors, replacing S. W. Sweet and Dr. J. R. Shoemaker with C. M. Wernig and Harry C. Allen, Eclat's sales manager. Other directors are: E. C. Reiss, A. E. Holmes and Jack E. Smith.

Mr. Reiss was elected president and treasurer. Last year he was secretary. Mr. Smith, treasurer last year, was elected secretary, and Holmes, president last year, was named vice-president.

"During 1930 and 1931," Mr. Reiss said, "the company has established a unique record in the rubber industry. Not one regular employee has been laid off in either factory or office. No general wage reduction has been made during this period."

Husted Patents Challenged

Suit challenging the patent rights of Harry Husted, inventor of the famous Husted hard rubber automobile steering wheel, was filed in the federal court at Cleveland, March 26. The suit, brought by Charles W. and Nellie M. Beck, charges that patent rights for the hard rubber steering wheel, which has been made so popular by the American Hard Rubber Company, were granted to Mr. Husted over the protests of Beck, who claims to have been the original inventor of the wheel.

Ebonite Company Formed

A company, headed by C. A. Smith, Jr., of Chester, W. Va., and backed by New Jersey capital, has leased the main building of the old Cord Tire Company, in Chester, W. Va., which will be remodeled and re-equipped for the manufacture of ebonite.

The plant for years was devoted to the manufacture of cord tires.

SHAKESPEARE IN PRAISE OF RUBBER

The new Shakespeare Memorial Theatre which is to be opened on April 23, the bard's birthday, at Stratford-on-Avon, is to have seats fitted with Dunlop rubber air cushions. W. Hodgson Burnet claims that Shakespeare no doubt anticipated this development, and in proof quotes many sly references to the subject in his plays. Mr. Burnet thinks that Shakespeare must have actually seen himself inspecting the work at the new theatre during progress. For example, he is evidently watching a workman inflating one of the new cushions when he says: "'Tis well-blown, lads." (Antony and Cleopatra, IV, 4). Later on in his tour of inspection he tries one of the cushions, and says contentedly: "Now am I seated to my soul's delight (3rd play Henry VI, V., 7).

Finally, as he passes out of the theatre, Shakespeare meets some titled directors of the Dunlop Co., and compliments them gracefully with the remark: "You knights of tyre are excellent." (Pericles, II, 3).

PICK UP EXPECTED IN U. S. RUBBER BRANCHES

A probable increase in the output of rubber sundries was indicated recently in reports from various New England divisions of the United States Rubber Company. Rubber sundry production is divided between the Naugatuck and the Providence plants, with the bulk of output centred in Providence.

H. W. Waite, general manager of the Providence division, said that although there had been no increase from recent operations, the outlook for sundries was better. He explained that the scope of such increase as was realized at the local plant would depend considerably upon weather conditions. The company manufactures various kinds of sports material such as golf balls and swimming equipment, the marketing of which depends to some extent upon an early or late season.

In Naugatuck, U. S. Rubber Company employees have been notified of a probable increase in activity. The tennis shoe department will operate four days a week.

There is a possibility for even larger production on boots and lumbermen's shoes if present business trends continue, company officials there said.

Master Corp. Re-elects

Officers and directors of the Master Tire and Rubber Corporation comprising Falls Rubber Company of Cuyahoga Falls, Giant and Cooper Companies of Findlay, O., were re-elected at the annual stockholders meeting held March 24.

R. P. Bremer is president and R. J. Cooper, chairman of the board. W. P. Cline was re-elected vice-president and treasurer. F. C. Milhoff, vice-president; J. F. Schaefer, secretary; A. W. Lishawa, assistant secretary, and F. M. Shadley, comptroller.

The officers, along with C. E. Hart, W. G. Lerch, J. B. Firestone and R. L. Kryder, make up the board.

Stauffer Moves Offices

The offices of the Stauffer Chemical Company of Texas, well-known suppliers of sulfur to the rubber industry, were moved on April 1, from Houston to Freeport, Texas. The move is being made in order to concentrate the company's entire operations at their refinery, where they can handle orders with greater dispatch through closer contact between sales, manufacturing and shipping departments.

WORK ON U. S. S. MACON IS PROCEEDING RAPIDLY

That extremely rapid progress is being made in construction of the *U. S. S. Macon*, sister craft of the *U. S. S. Akron*, world's largest airship, was indicated, recently, when the sixth main frame of the *Macon's* framework was raised into position.

With the raising of the sixth main frame, the duralumin skeleton of the *Macon* had attained a length of more than 350 feet and the after portion of the hull was nearing completion. Work is also well under way on construction of the ship's fins, to which the movable control surfaces necessary to guide the craft through the air, are affixed.

Basic design and construction of the *Macon* are identical with the *U. S. S. Akron* and for that reason the highly trained group of workmen who built the first ship are able to accomplish their tasks on the *Macon* with greater speed due to their previous experience, according to officials of the Goodyear Zeppelin Corporation, builders of the ship.

Because a better production schedule could be maintained, different procedure than with the *Akron* is being followed on the present ship. For test purposes and other reasons it was necessary to start amidships and erect the forward part of the hull of the *Akron* first. Starting forward of amidships on the *Macon*, construction has been carried on toward the stern.

The main frame just erected is the last and smallest in the after part of the hull structure, and there remains only attachment of the cone-shaped stern section and the fins to complete this portion of the ship.

When completed, the entire hull of the *Macon* will have a total of eleven main frames, spaced approximately 74 feet apart in the midship portion of the ship. All but one of them are triangular in cross section, being composed of two outer annular rings joined to an inner annular ring by a system of girders in zig-zag fashion, and are connected to each other by a series of 36 longitudinal girders. Spaced at intervals between the main frames are intermediate frames of single girder construction.

M. E. M. A. Opposes Tax Bill

Manufacturers of automotive parts, accessories and equipment both for original equipment and replacement purposes are protesting against the proposed excise tax on automobiles and automotive products passed by the House Committee of the Whole on March 29.

A bulletin issued by the Motor and Equipment Manufacturers' Association points out that the tax is being opposed on the ground that it discriminates against a product which already is taxed highly. It reiterates the stand of the automotive industry to the effect that automotive manufacturers are willing to carry their just share of any general sales or excise tax which might be imposed on all industries but are definitely opposed to any plan which singles out one of the country's key industries.

"There is grave danger that the rates in this proposed tax will be regarded as insufficient and that an attempt will be made during the debate in Congress to increase them substantially," the bulletin declares. "While such an attempt might be disguised as another 'emergency' measure, once approved it would be very difficult, if not impossible, to have such taxation withdrawn."

Litchfield Awards

AWARD of the special Litchfield medal of merit was made March 12 to SAMUEL A. STEERE, manager of the Goodyear Tire & Rubber Company's cotton and fabric division, at a big employees' night celebration. Mr. Steere, who received the medal for his development of Goodyear "supertwist cord" used in all tires the company makes, is the third to be recognized by the factory council with the award, although the Litchfield medal plan has been in existence for some years.

Mr. Steere, a graduate of Brown University, has been with the company since 1919 when he assumed charge of the California tire fabric mill. He did his development work on "supertwist cord" in the company's mills at Goodyear, Conn.

In the award of the medal the factory council pointed out that Steere's fabric development was one of the most outstanding tire construction improvements in the past decade because the new stronger, more elastic and resilient cord he worked out practically ended tire troubles caused by fabric and shoulder breaks.

CARL WOLLAM, Goodyear free balloon pilot, won the first Litchfield award by saving the life of his aide, J. F. Cooper, in a balloon race out of Pittsburgh when the aerial craft was struck by lightning and caught fire.

CHARLES E. BRANNIGAN, Goodyear airship pilot, was awarded the medal for extraordinary bravery in the line of duty.

Corduroy Reports Progress

Corduroy Rubber Company, Grand Rapids, Mich., held the annual stockholders meeting March 15.

President L. A. Brown's report stated the company had added 1,300 new retail distributor accounts in the past year and that the company's sales volume had shown an increase despite drastic price reductions made to meet competition.

The following officers and directors were re-elected: president, L. A. Brown; vice-president, Roy C. Murphy; secretary, Merwin J. Goldner; treasurer, B. T. Schall.

To Study Rubber Factories

The class of economics at Ohio Wesleyan University will include the Akron plant of the Firestone Tire and Rubber Company in its tour of manufacturing establishments to be studied in connection with the requirements of the course.

Faultless Has Fire Loss

A stroke of lightning, during a violent storm, March 21, set fire to the dip plant of the Faultless Rubber Company, Ashland, O., causing an explosion and doing damage to the extent of $3,000.

U. S. RUBBER BRINGS OUT "TEMPERED RUBBER" TIRES

"Tempered rubber," a new compound which is said to increase the life of tire tread by 13 per cent, has been developed by the United States Rubber Company, and it is now used in the construction of all United States Rubber Company's automobile tires.

The new product has been experimented with for the last four years and was only placed on the market after it had been tested nearly six million tire miles.

Dr. Sidney M. Cadwell, director of the U. S. tire development department, is credited with the discovery of the new compound. He established the theory that it was possible to produce a more durable tread, if certain missing elements could be found. With the aid of a dozen laboratory experts, he found the elements.

How highly the company regards tempered rubber is shown by the fact that it refuses to sell the rights to the process of making it or the ingredients essential to production. Heretofore, the company frequently has sold both formulas and chemicals used in the manufacture of products developed by it.

Since the new compound adds a missing something to rubber, and the process seems akin to the tempering of steel, it is called Tempered Rubber. What it actually is from the technical viewpoint, is a closely guarded secret.

The following qualities are claimed by the United States Rubber Company for tempered rubber: It is the toughest rubber ever produced; it wears down more slowly, preserving a non-skid tread for a much longer time; it increases tire mileage and adds 13 per cent to the life of tire tread.

Travel Far to Conference

Thousands of miles were traveled by technical representatives of subsidiary companies of B. F. Goodrich Company to attend a recent conference on product and new developments in the rubber industry, at the Akron plant offices.

Those at the conference with Goodrich officials at the plant are Arthur Kelly, operations engineer of the Yokohama Rubber Company, Ltd., Goodrich subsidiary in Japan, who traveled 10,000 miles, W. R. Hucks, manager of the development department, Pacific Goodrich Rubber Company, who traveled 3000 miles, and M. O. Orr, manager compounding department, and C. W. Beaman, manager construction and development department, Canadian Goodrich Company, Ltd., who traveled 400 miles from Kitchener, Ontario.

Fatal Rubber Scrap Fire

A fire, requiring four alarms and causing the death of one fireman and felling 42 others, occurred in the three-story loft warehouse of the Rubber Waste Company, 152 Lincoln Avenue, Bronx, New York City, March 22. The damage to the property and scrap rubber stocks was put at from $75,000 to $100,000.

TIRES COST 59 CENTS PER THOUSAND MILES

A survey recently completed shows that the average cost of new tires to the American motorist in 1932 is approximately 59 cents per thousand miles of road service for sizes most commonly used, according to S. B. Robertson, vice-president of B. F. Goodrich Company, Akron, Ohio.

This compares with an estimated cost of $5.67 per thousand miles which motorists paid for their use of corresponding tire sizes in 1914.

"Economies in the use of materials, shortening time of vulcanization and better planning and execution of processing has brought this about," Mr. Robertson explained. "As a result the consumer is receiving many times the service value for his dollar of cost. Not only have such advances been made in manufacture of automotive tires, but many new uses of rubber have also been developed to widen its sphere of service and consumer utility."

V-BELT LITIGATION IS SETTLED OUT OF COURT

A mutual agreement has been reached in litigation which has been on for some time between the Dayton Rubber Manufacturing Company and the Allis-Chalmers Manufacturing Company of Milwaukee, over the use of the "V" type belts, according to a statement by John A. MacMillan, president of the rubber company.

The matter was in litigation in New York and was settled out of court, Mr. MacMillan stated. By its terms, the Dayton company takes a license to manufacture under what is known as the Geist patent and the Milwaukee company operates under what is known as the Short patent.

Resume Service After Fire

The exclusively industrial naphtha refinery of the Anderson-Prichard Oil Corporation at Cyril, Oklahoma, which suffered a serious fire recently, resumed full operation on March 28.

Their policy of carrying heavy stocks of their highly specialized industrial naphthas, such as Troluoil, Petrobenzol, Apcothinner, etc., has enabled them to give uninterrupted service to all of the industries they serve, as none of these stocks were destroyed. Temporary lines and pumps for loading service were in operation approximately forty-eight hours after the fire was brought under control, even though their entire pumping system was completely destroyed.

Monsanto Stockholders Meet

The annual meeting of the stockholders of Monsanto Chemical Works was held at the St. Louis office of the company on March 22. John F. Queeny was elected chairman of the meeting and W. W. Schneider, secretary. Edgar M. Queeny, president, commented on the company's operations for the year ending December 31, 1931, which had been outlined in a report mailed to all shareholders.

The members of the retiring board of directors were re-elected to serve for the ensuing year. Following the stockholders' meeting, there was a meeting of the board of directors, at which all the officers of the company were re-elected.

In addition, H. M. Harker and F. B. Langreck were elected assistant vice-presidents in recognition of valuable services rendered to the company. Mr. Langreck is works manager at Monsanto, Illinois, and Mr. Harker has been director of purchases and more recently assistant sales manager.

"Gum-Cushioned" Tires

An exclusive Canadian development and one which has passed a three-year test under all driving conditions has now been launched by Gutta Percha and Rubber, Limited, in the introduction of a new process in tire construction known as the "gum-cushion" feature.

This consists of building in, between the layers of the strongest fabric of which all good tires are built, broad pads of pure gum rubber. These absorb the friction between the layers of the tire and eliminate road shocks and stone bruises so that the cords are not damaged. The life of the tire is said to be lengthened by this protection.

In addition to the testing of gum cushioning, a new and tough hard-wearing material is also being tested in tire tread, explains C. N. Larsen, general sales manager of Gutta Percha and Rubber, Limited. Known as Resisto tread, this is said to give still greater value to the tire purchaser.

Dayton Stockholders to Meet

The stockholders meeting of the Dayton Rubber Manufacturing Company, Dayton, O., set for March 28, was adjourned to April 11, to again take up the plan for the financial reorganization of the concern. It is believed that sufficient proxies will be voted at the meeting to put through the plan presented by the board of directors.

While enough proxies were practically assured at the previous meeting, John A. MacMillan, president of the company, stated that owing to the fact that the number of stockholders totaled 9,300 and are scattered all through the United States, it has been difficult to get the response required by law.

The law requires a two-thirds consent from each of the four classes of stock and Mr. MacMillan stated Monday the fact that this has not been obtained is more a matter of indifference on the part of the smaller stockholders than any opposition to the plan.

R. M. A. Tire Table

The Rubber Manufacturers' Association has just published, for free distribution through its members, a table showing the make and models of passenger cars, tire sizes and recommended tire inflation pressures for the years 1929, 1930, 1931 and 1932.

This information was gathered by the Association from car manufacturers and represents their recommendations. The chart has been distributed to member companies for distribution to their branches, warehouses and dealers.

FIRESTONE HELPS ITS UNEMPLOYED GROW FOOD

How a rubber company helped its unemployed and part-time workers to support their families through vegetable gardens is told in a report now being issued by the President's Organization on Unemployment Relief. Last year, the report shows, many industrial firms in all sections of the country aided in garden projects. As a result, hundreds of thousands of families were able to grow their own food for summer needs and to can surpluses for winter use. thus relieving the burden upon community relief agencies and demonstrating their determination to help themselves. So successful was this movement that, as this year's growing season is about to start, another large program is expected for 1932.

The rubber firm cited in the report is the Firestone Tire and Rubber Company of Akron, Ohio. This company has conducted employes' gardens since the war. Good locations and soil are available on company land near Firestone Park. The firm plows and prepares the soil, stakes and allots gardens, and supplies fertilizer. Employes supply their own seeds.

In 1931, 300 gardens were assigned, averaging about 80 by 80 feet in size. Prizes of $20, $15, $10, and $5 were offered on basis of production, variety, and care. The company thinks the plan well worth while and emphasizes the importance of suitable conditions for the production of good crops.

The President's organization is encouraging state and community relief committees and industries to begin planning garden programs early this spring. Similar recommendation was made by the organization a year ago.

To make available the benefit of the garden experience of last yer and previous years, the President's Organization has just published 29 of the many reports sent in by communities and industries who helped the unemployed grow some of their own food.

Exchange Differentials

The adjustment committee on March 24, fixed the price differentials between the various grades of hevea plantation rubber which shall prevail on all deliveries against the Rubber Exchange of New York, Inc., New "A" Contracts, for the month of April, 1932, as follows: No. 2 crepe (thick or thin) at 1 point; No. 2 ribbed smoked sheets at 8 points; No. 3 ribbed smoked sheets at 16 points; No. 4 ribbed smoked sheets at 28 points; No. 5 ribbed smoked sheets at 50 points. The limit of allowance on No. 2 crepe was made at 25 points. Allowance on rubber delivered in bales was set at 13 points.

Pacific Coast Agency

Atlas Electric Devices Company, Chicago, manufacturers of apparatus fro predetermining the resistance of materials to sunfading, weather, and washing, announces the appointment as its Pacific coast representatives of L. H. Butcher and Company, 274 Brannan Street, San Francisco, with branches in Los Angeles, Portland and Seattle.

Rubber News Around the World

FRENCH GOVT. ASSISTS PLANTERS IN COLONIES

The French Government has again taken in hand the support to the rubber planting industry in its colonies, says the Paris correspondent of the *Deli Courant* (D. E. I.) and the *Malayan Tin and Rubber Journal* (Ipoh., F. M. S.). A law passed last year aims at assisting the French rubber producers by the institution of a "Compensation Fund," which will give a premium to producers towards partial compensation for the disadavantageous difference between cost price and market price. In this Fund a contribution of 50 million francs was given at once, as an advance to the colonies concerned. This amount will be paid back by the so-called statistical duty of 30 centimes per kilo of crude rubber which enters France. This goes into the Compensation Fund, until the time that prices have reached a profitable level.

The first part of this Government project is already in working order and it only supports plantations which are already producing. The Government intends now, by giving credit for long periods, also to assist young plantations, which as yet do not produce and which the Government wants to keep in existence.

The Minister of the Colonies, M. Reynaud, vaguely indicated this, at the time of his departure, when he defended himself against the accusation often made in the Colonies, that the French Government is agreeable to lend money at a low interest to Europe, but leaves the Colonies and the colonial enterprises in the lurch.

Awaiting the materialization of this scheme, temporary measures are being taken with regard to the most important colonies, Indo-China, French West Africa, the Camaroons, and Madagascar. With regard to Indo-China, the most important rubber producing colony, the Federal Government undertook to advance a sum of 44 million francs for the upkeep of the non-producing plantations. Later it was compelled to restrict itself to an advance of 20 million francs. The remaining 24 millions, it was thought, could be found by a loan which the Government of Indo-China could take with the Autonome Amortization Caisse. The negotiations concerning this have not been concluded.

Italian Tire Exports, 1931

According to preliminary official statistics, Italy exported 6,401,500 kilos in weight in pneumatic casings and tubes, during the calendar year 1931, as compared with 7,125,700 kilos in 1930. It is estimated that on the average, one automobile casing represents about eleven kilos weight, but it is not possible to deduce any accurate figure of the number of casings shipped on this basis. A rough estimate, however, of 585,374 ca›ings is given by the Department of Commerce.

Italy's best markets during the past year were Belgium, British India and Ceylon and Argentine.

Italian Carbon Black

The average combined production of carbon black and lampblack in Italy the last four or five years has been approximately 900 metric tons. Largest producers of carbon black are the Conservazione Lagno e Distillerie Cetrane at Piedmont, Distille Lombard di Catrane in Milan and the Viscardo Viscardi firm in Bologna. Annual output of the pigment is insufficient to meet domestic demands. Imports for 1930 were 1,765 metric tons, while those for the first eleven months of 1931 were 1,191 tons, the majority of which came from the United States.

Softened Rubber, Ltd.

Announcement has been made of the formation of a new company in England, to operate under the name Softened Rubber, Ltd., and capitalized at £1,300 in £1 shares. The new concern is to acquire and develop various patents and inventions and to adopt an agreement between R. M. Ungar, rubber manufacturer and Philip Schidrowitz on the one hand and F. Shaw & Company, Ltd., Manchester, engineers, and Pirelli, Ltd.

Malayan Production Drops

Production of rubber on large Malayan estates decreased to 18,731 tons in February from 23,478 tons in January. The output of small estates amounted to 14,241 tons, against 18,474 tons in January. The falling off in rubber production is believed due to the annual "wintering" period. Stocks on estates decreased to 21,163 tons in February from 22,161 tons in January. Dealers' holdings increased to 27,750 tons from 26,468 tons.

The rate of rubber production and exports by the British rubber growing territories fell off even at a faster rate during March. Declines from 5 per cent to 24 per cent were shown from February while shrinkages in shipments from March last year ranged from 17.9 per cent in the case of Malaya to 45.2 per cent for the island of Ceylon.

The figures are as follows: Malayan shipments, March, 39,903 tons; February, 42,008 tons; as against 48,589 tons for March and 41,951 tons for February last year. Ceylon shipments, March, 3,405 tons; February, 4,462 tons; as against 6,213 tons for March and 6,341 tons for February last year.

British Footwear Exports, 1931

During the calendar year 1931, the United Kingdom exported 2,018,748 pairs of rubber boots and shoes and canvas rubber-soled shoes valued at £233,885.

N. BRITISH FOOTWEAR PLANT CLOSES DOWN

The North British Rubber Company have announced the closing down of its footwear factory at Fountainbridge, Edinburgh, for at least a two weeks' period and the dismissal of approximately 2,000 workers. The plant is one of the largest rubber footwear factories in Great Britain and ordinarily employs 4,000 people.

Decision to close the footwear department is laid directly to severe Japanese competition from extremely cheap grades of shoes which are being imported into the United Kingdom in large quantities and sold at a price which the British manufacturers are unable to meet.

Alexander Johnston, managing director of the company, stated that the 10 per cent general tariff as now applied is insufficient to meet the Japanese competition and application has been made to the new Tariff Commission for an increase in duties, but it will be some time before this can be imposed and its effect felt.

While it is expected that the footwear department will resume operations shortly, Mr. Johnston, in his statement, indicated that subsequent developments must determine the course to be taken by the company.

"It is hoped to reopen at the end of a fortnight if the position is clearer," said Mr. Johnston. "It is, of course, essential to carry on a department such as this at full production—if it is to pay its way. The percentage of labor in this class of manufacture is very high, and this, of course, gives Japanese competition an added advantage."

Asked if he could make a comparison between cost of British and Japanese labor, Mr. Johnston said: "It is very difficult to do so. The cost of labor in Japan varies very much in different parts of that country, but it is probably under a quarter of what we pay."

British Tire Exports, 1931

British exports of automobile tires and inner tubes, during the calendar year 1931, reached a total of £2,731,970 in value. Pneumatic casings to the number of 1,166,792, valued at £2,456,186 were shipped, while inner tubes numbering 802,799, valued at £226,023. Solid tires to the number of 11,529 and valued at £49,761, were also exported.

England's best markets were New Zealand, Irish Free State, France, British India and British South Africa.

Heads Shanghai Branch

The International B. F. Goodrich Company, the export subsidiary of the Goodrich Company, has announced the appointment of Paul Dietz to head the sales organization in the Shanghai area.

Mr. Dietz was formerly in charge of the Goodrich interests in Mexico. He sailed March 25th for his new post in the Orient.

Beharrell Honored

The grand council of the Federation of British Industries has nominated Sir J. George Beharrell, a prominent figure in British rubber circles, to succeed Sir James Lithgow as president of the federation for 1932.

Sir George is managing director of the Dunlop Rubber Company, and an authority on railway commercial transport. During the war he went to France as Assistant Director-General of Transportation. Later he became Assistant Inspector of General Transportation for all the theatres of war.

For two years he filled the office of president of the Society of Motor Manufacturers & Traders, and for one year was president of the India Rubber Manufacturers' Association. He is now a director of Imperial Airways, the British air transport combine.

Edward C. Deardorff

Edward C. Deardorff, one of the founders of the Toledo Rubber Company, Toledo, O., died at the Mercy Hospital, Toledo, March 27, after a long illness. He was 70 years of age.

Mr. Deardorff was born in Dover, O., and went to Toledo in 1890. With his brother, Theodore H. Deardorff, he organized the Toledo Rubber Co., which they operated until it was sold in 1927. Since that time he had been a broker in mechanical rubber goods representing severl nationally known concerns. In former years he was active in the Toledo Driving club and his hobby was fine-bred horses.

Herbert Grimshaw

Herbert Grimshaw, manager of the golf ball department of B. F. Goodrich Company, Akron, O., died suddenly on March 25, from a stroke after an attack of influenza.

A native of Yorkshire, England, Mr. Grimshaw came to the United States at the age of 21. He has been associated with the golf ball department of Goodrich for the last sixteen years and recently assisted in establishing a similar department in the British Goodrich plant.

Rubber Stock Quotations

	Last Price		—1932—	
	Apr. 5	Mar. 25	High	Low
Aetna	2⅜	2½	3	1¾
American Hard Rubber	—	—	—	—
Faultless	23	25	25	22
Firestone	12	12⅛	15	12
do. 6% pfd.	49½	53	59½	49½
Fisk	⅛	⅛	⅜	⅛
do. 1st pfd.	—	⅜	⅞	¼
General	45	45	49¾	49¾
do. pfd.	60	60	—	—
Goodrich	3¼	4¼	5⅝	3¼
do. pfd.	9½	14⅞	17	9½
Goodyear	11	16	18	11
do. 1st pfd.	42	54½	59½	42
India	4½	4½	7	—
Intercontinental	—	—	—	—
Kelly-Springfield	1⅛	1⅞	2⅝	1
do. 6% pfd.	18½	16½	39⅞	16½
Lee	2	2	2⅛	2
Mohawk	2	2	2½	1
do. pfd.	20	20	—	—
Norwalk	—	—	—	—
Pirelli	—	—	30⅞	26⅞
Raybestos-Manhattan	8	9¾	11½	9¾
Seiberling	2½	—	4½	2½
do. pfd.	15	20	22	15
Thermoid	1½	2	3	1½
U. S. Rubber	3⅜	4⅝	5⅜	3⅜
do. pfd.	6⅜	8⅞	10⅞	6⅜

Names in the News

Banbury Returns From Trip

F. H. BANBURY, manager of the Banbury Mixer department of Farrel-Birmingham, Inc., Ansonia, Conn., has recently returned from a ten weeks' trip which took him to the West Coast, with visits to a number of the company's customers in the middle west and far west.

During several weeks spent at Los Angeles he visited all the rubber companies in that district with the Farrel-Birmingham Los Angeles representative, H. F. PARKERTON. At the Februray meeting of the Los Angeles Rubber Division of the American Chemical Society he delivered an address on the subject of "Banbury Mixers."

A week at Smoke-Tree Ranch near Palm

F. H. BANBURY

Springs gave him some of the vacation which was the primary purpose of the trip. Palm Springs is the winter home of HENRY PEARSON, former owner of the *India Rubber World*. Although retired, Mr. Pearson is still interested in anything pertaining to rubber and Mr. Banbury spent a pleasant afternoon with him discussing past and present conditions in the industry.

Following a visit to San Francisco where he called on the trade with the Farrel-Birmingham representative, GEORGE L. HURST, Mr. Banbury returned to Riverside for another week's vacation at Mission Inn before returning home. On the return journey several days were spent at the Gates Rubber Company, Denver, and other calls made at Cincinnati and Erie.

R. J. BONSTEIN, for the past two years connected with the Thiokol Corporation, Yardville, N. J., and formerly connected with the development department of the Seiberling Rubber Company, Akron, has announced his resignation from the Thiokol Corporation, effective March 31. No details were given as to his future plans.

DR. KARL ARNSTEIN, vice-president of the Goodyear-Zeppelin Corporation, was one of the principal speakers at the meeting and dinner of the American Society for Testing Materials, at their recent Cleveland regional meeting. Dr. Arnstein spoke on the latest developments in lighter-than-air craft.

JAMES D. TEW, president of B. F. Goodrich Company, addressed the last of the management dinner meetings of the Goodrich organization of the season, on March 31. T. G. GRAHAM, vice-president was chairman and toastmaster.

PEER LOCKE, assistant superintendent of the Oak Rubber Company, Ravenna, O., who underwent a serious operation recently, is reported to be improving.

HERBERT G. WILSON, of Goodyear's publication department, spoke on March 23, before the Hickory Club, of Akron, at the Women's City Club, on the duties of a public relations expert.

WAYNE D. STEWART, of the B. F. Goodrich Company, Akron, addressed the Cleveland Exchange Club on April 7, on the subject of "How the Rubber Industry Keeps Pace with Progress."

DR. H. E. FRITZ, B. F. Goodrich Company chemical sales scientist, in a discussion before the American Society for Testing Materials recently declared that more than $200,000,000 annually wasted by corrosion and erosion on pipes and other metal could be saved by application of rubber. Cost of this waste is passed on to the consuming public, he said. There are more than 100 corrosives whose destructive action can be stopped by application of rubber.

DR. H. L. TRUMBULL, chemical laboratories, B. F. Goodrich Company, Akron, O., in a recent scientific paper, pointed out how discovery of non-accelerating antioxidants by research workers had brought marked improvement in value of rubber products and saved the consuming public $50,000,000 annually. Development of these tests alone required ten years, he said.

HENRY N. YOUNG, vice-president ot the Hamilton Rubber Manufacturing Company, Trenton, N. J., has been spending some time in Bermuda.

THOMAS W. YATES, president of the Trenton Tire and Rubber Company, Trenton, N. J., has been elected director of old age pension relief by the Mercer County (N. J.) Welfare Board. Mr. Yates was formerly assistant president of the New Jersey State Senate.

NOAH VAN CLEEF, of Van Cleef Brothers, Chicago, Ill., recently sailed on a two months' business trip to Europe.

Rubber Goods and Specialties

Hose With Sprinkler Valves

A new type of garden hose with built-in sprinkler units has been introduced by The B. F. Goodrich Company. The new Goodrich product was developed after a careful study of consumer needs for the scientific care of lawns and gardens, according to G. L. Matthias, general superintendent of the Goodrich mechanical goods division.

"Our survey showed that stationary revolving sprinklers, spraying wide areas, have to be moved frequently and usually irrigate with a considerable waste of water," Mr. Matthias said.

"Only the wealthy property owner can ordinarily afford a permanent sprinkler sys-

tem, while this new hose, known as 'multi-spray,' was engineered to provide an inexpensive and flexible piping system with various outlets supplying water in a gentle spray at the exact points desired. The valves are set approximately 12 feet apart.

"A new water outlet was also designed to provide a mist instead of a downpour. This spray head makes sprinkling possible with a few turns of a thumb screw, and by turning off the sprinkler heads, the hose may be used with a nozzle for sprinkling by hand.

"A fifty foot length of hose so equipped will sprinkle from 700 to 1,000 square feet, depending on the water pressure, and the cost is but little more than the price for hose without the built-in sprinkler units," Mr. Matthias said.

Rubber Building Blocks

The Essex Rubber Company, Trenton, N. J., are introducing at this year's Toy Fair, their new "Buildor" interlocking building blocks. These bricks are made of live red rubber and are fastened together by means of projections and depressions in each block. Special ornamental gray rubber blocks for trimmings and foundations are also supplied in the set of 130 pieces, from which can be constructed any number of buildings in the fancy of the child. "Buildor" rubber blocks are made in three sizes to retail at $1.50, $3.00 and $5.00.

Ruberex Casters

The recognition of quiet casters on furniture has opened a larger market for rubber and rubber compounds. A typical example of this is the prominence which the Faultless Caster Company, Evansville, Ind., has given to Ruberex, a rubber compound of which the wheels of many Faultless models are made.

This compound has helped to solve one of the most difficult problems which confronted the caster manufacturers, by eliminating noise while retaining strength and durability

Faultless Ruberex Caster

For casters designed for use on tile or terrazo floors Ruberex wheels are especially commended by the manufacturers.

Ruberex is soft enough to provide a surface that will not slip on a smooth, hard floor, but is so durable that casters made from this material have a long life. Ruberex casters roll silently and easily across tile and terrazo floors and subdue all sounds of rumbling and scraping which ordinary casters give off from hard surfaces.

"Flying Silvertowns"

Low pressure automotive tires introduced in February by The B. F. Goodrich Company will be known as "Flying Silvertowns," it has been decided by company officials.

The new type tires, more commonly known as the "doughnut" type of tire, designed for use on light weight cars, carry 15 pounds air pressure.

High Speed Fan Belts

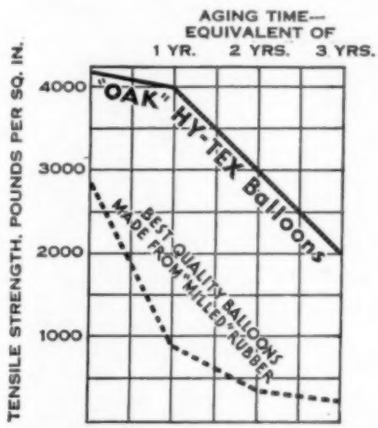
Recognizing the ever growing tendency toward higher engine speeds in the automobile industry, which leaders of the field have been stressing for several years, the B. F. Goodrich Company, Akron, O., has just developed a new high speed fan belt which has passed every rigid test up to 5000 r.p.m.

To produce this belt which is revolutionary when compared to former slower speed belts, it was necessary to design a new dynamometer set and an entire new line of machines, according to J. H. Connors, Goodrich vice-president, who made the announcement.

Balloons From Latex

A new line of toy balloons manufactured from liquid latex has been announced by the Oak Rubber Company, Ravenna, Ohio. The anode process is being used in the manufacture of these balloons. They are being marketed under the registered trade mark, "Hy-Tex."

A better quality than has heretofore been available in toy balloons is claimed for the



Comparative Laboratory Tests With Hy-Tex Balloons

Hy-Tex line. Before being offered to the trade the new line was subjected to a long period of study in the factory, and had to undergo many exacting laboratory tests.

The accompanying chart shows the results of the most important of these tests. Hy-Tex balloons register a tensile strength of 4,300 lbs. to the square inch, but the best mark registered by "milled" stock balloons was 2,800 lbs. Hy-Tex balloons are also shown to be more resistant to aging.

Novelties at British Fair

Among the rubber novelties shown at the British Industries Fair in London this year were powder puffs for the dressing table. The puff itself is of sponge rubber and has a plain top, finished with a bow of pale blue rubber "ribbon." Rubber puffs for the handbag were also featured—a small circular article of "vanity" size and another type slightly larger, both of red sponge rubber. The latter was hidden between the leaves of a plain rubber book which were used for wiping off superfluous powder.

A safety book strap is another new line. This is made in one piece, perfectly flat and about 18 inches long, the two ends being wider than the middle, and each made with a hole in the center.

Cuff buttons, too, are a novelty. By using these the necessity of undoing the cuff is obviated, as the little rubber bar gives when the hand is pushed through.

RUBBER SAFETY MEN MAP PROGRAM FOR YEAR

The executive committee of the Rubber Section, National Safety Council, held meetings in Buffalo, February 18-19, and outlined the program of the Section for the coming year. J. Kerrigan, of the U. S. Rubber Reclaiming Company, Buffalo, N. Y., made all the local arrangements for the sessions and entertainment.

On Thursday morning, February 18, representatives from the U. S. Rubber, Firestone, Goodyear, Goodrich, Pennsylvania Rubber, Hewitt-Gutta Percha Rubber Companies were the guests of W. H. McKay, Dunlop Tire and Rubber Company, Tonawanda, N. Y. After a very interesting trip through the entire plant of the Dunlop Rubber Company, the members of the Section were entertained at lunch by Mr. McKay.

In the afternoon the Section met in Mr. McKay's office for the purpose of outlining the Rubber Section's program for the coming Congress in Washington, D. C. The first order of business was the acceptance of chairman of the Section, who is leaving safety work at the Firestone Tire & Rubber Company, and engaging in another line of work for that company. Mr. J. R. Hanson, vice-chairman of the Section, was made chairman of the Section for the remainder of this year.

In the evening the committee were guests at a dinner meeting held in the Elks' Club, Buffalo, at which more than 75 people were present.

On Friday morning, February 19, the committee met at the offices of the Hewitt-Gutta Percha Company, where they discussed over 25 safety subjects which are pertinent to the rubber industry. At the conclusion of the meeting the members of the Rubber Section were guests of E. K. Twombly of the Hewitt-Gutta Percha Rubber Company for luncheon. After lunch the executive committee were again guests of Mr. Kerrigan on a sight-seeing tour over the Peace Bridge to Canada, after which

On Friday morning, February 19, the they visited Niagara Falls.

Balloon Tire Table

A chart of balloon tire sizes and the cars using them has been prepared and is available for free distribution by the National Rubber Machinery Company, Akron, O.

RECEIVER'S SALE

Bickett Rubber Products Corp.

Two-story brick factory building with real estate. Fully equipped with extruding and moulding machinery, mills, presses and raw materials. Factory now in operation at

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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, APRIL 5, 1932

Crude Rubber

IT was but natural to expect a decline in crude rubber prices after the joint announcement from the British and Dutch governments that restriction plans were in the discard. However, the already low price of the commodity precluded any drastic fall. The price declined only to 3 cents, a drop of less than ½ a cent and then steadied for the rest of the fortnight. The trade has taken the restriction news with a certain amount of complacency and is now "digging in" with the knowledge that the uncertainties of the restriction negotiations are dispelled.

Reports of March consumption indicate a drop from February's figure and imports are also showing a decline, probably reflecting a form of voluntary restriction which is inevitable at present price levels.

Prices quoted on the New York outside exchange as of April 5 follow:

Plantations—			
Ribbed Smoked Sheets—			
Spot-April	.03	@	.03⅛
May-June	.03⅛	@	.03¼
July-Sept.	.03¼	@	.03⅜
First Latex, crepe spot	.04⅝	@	.04½
Amber Crepe No. 2	—	@	.03
Amber Crepe, No. 3	—	@	.02⅞
Amber Crepe, No. 4	—	@	.02¾
Brown Crepe, Clean thin	—	@	.02⅞
Brown Crepe, rolled	—	@	.02¾
Liquid Latex, per gal.	.70	@	.75
Paras—			
Up-river, fine	—	@	.05
Up-river, coarse	Nominal		
Acre Bolivian, fine	—	@	.05½
Caucho Ball, Upper	.02½	@	.03
Centrals—			
Central scrap	.04	@	—
Esmeraldas	.04	@	—
Balata—			
Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

April	1¾	@	1⅞d
May	1⅞	@	2d
June	1⅞	@	2d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot	1½	@	1⅝d

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

Reclaimed Rubber

A drop in both production and consumption of reclaimed rubber was reported in February. The percentage of reclaimed to crude used in the industry also declined, but the situation is but natural in view of the continued low price levels of crude and, under the circumstances, it is remarkable that reclaimed prices quoted below remain unchanged from the last fortnight.

High Tensile				
Super-Reclaim Black	lb.	.05	@	.05¼
High Tensile Red	lb.	.05	@	.05¼
Shoe				
Unwashed	lb.	.05	@	.05¼
Washed	lb.	.05¾	@	.06
Tube				
No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.04¾	@	.05
Tires				
Black	lb.	.03¾	@	.04
Black, selected tires	lb.	.04	@	.04¼
Dark Gray		.05	@	.05¼
Light Gray	lb.	.05½	@	.06
White	lb.	.05½	@	.05¾
Truck, Heavy Gravity	lb.	.05	@	.05¼
Truck, Light Gravity	lb.	.05¼	@	.05½
Miscellaneous				
Mechanical blends	lb.	.03	@	.03½

Scrap Rubber

The maintenance of reclaimed prices have tended to steady scrap prices during the last two weeks. Attempts are being made to assist the scrap problem with some adjustments in railway rates to accumulation centers but nothing has been reported so far to help the situation. Late quotations to consumers follow:

(Prices to Consumer)

Auto tire peelings	ton	18.00	@	20.00
Mixed auto	ton	7.50	@	8.75
Bicycle tires	ton	5.00	@	6.00
Clean solid truck tires	ton	24.00	@	26.50
Boots and shoes	ton	15.00	@	17.50
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.02⅝	@	.02⅞
Inner tubes, No. 2, compounded	lb.	.01⅜	@	.01½
Inner Tubes, Red	cwt.	1.40	@	1.50
Air Brake Hose	ton	9.00	@	10.00
Rubber Hose	ton	8.50	@	9.00

Cotton

THERE has been a drastic decline in cotton over the last two weeks on the strength of disconcerting reports from Washington and a lack of strong buying interests. The spot market has been particularly weak in the face of an apparent lack of interest.

It is not yet time to note the effect of this decline in cotton fabrics. Declines in the other commodity and securities markets also have contributed to the drop in raw cotton.

High, low and closing prices on the New York Cotton Exchange as of April 5, follow:

	High	Low	Close April 5	Close Mar. 21
April			6.10	
May	6.24	6.14	6.16	6.75
July	6.40	6.29	6.31	6.92

Tire Fabrics

Prices have been generally maintained in tire fabric constructions during the last fortnight, in spite of a lower level in cotton prices and poor demand. Prices follow:

(Prices Net at the Mill)

CORD

Peeler, carded, 23/4/3	lb.	.24	@	.24¼
Peeler, carded, 23/5/3	lb.	.23	@	.23¼
Peeler, carded, 13/3/3	lb.	.20	@	.20¼
Peeler, carded, 15/3/3	lb.	.21	@	.21¼
Egyptian, carded, 23/5/3	lb.	.35	@	.35½
Egyptian, combed, 23/5/3	lb.	.40	@	.40½

CHAFERS

Carded, American, 8 oz.	lb.	.18	@	.19
Carded, American, 10 oz.	lb.	.18	@	.19
Carded, American, 12 oz.	lb.	.18	@	.19
Carded, American, 14 oz.	lb.	.17	@	.18

LENO BREAKER

Carded, American, 8¼ oz.	lb.	.18	@	.22
Carded, American, 10¼ oz.	lb.	.18	@	.22

SQUARE WOVEN

Carded, American, 17¼ oz. 23-11 ply	lb.	.23	@	.24
Carded, American, 17¼ oz. 10 ply	lb.	.17	@	.17½

Sheetings

In the face of a very inactive market the prices on sheetings have been generally maintained. Late quotations were as follows:

40-inch, 2.50-yard	yd.	.05⅝	@	.05¾
40-inch, 2.85-yard	yd.	.05¼	@	.05¼
40-inch, 3.15-yard	yd.	.03⅝	@	.03½
40-inch, 3.60-yard	yd.	—	@	.04¾
40-inch, 3.75-yard	yd.	—	@	.04¼
40-inch, 4.25-yard	yd.	—	@	.03¾

Ducks

A slight interest in ducks has been the influence in maintaining price levels during the last two weeks. Late prices follow:

Enameling	lb.	.16¾	@	.17¾
Belting and Hose	lb.	.18	@	.18½
Single filling	lb.	.08	@	.08¼
Double filling	lb.	.09½	@	.09¾

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons

FROM MARCH 22 TO APRIL 5, 1932

		Spot	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Sales
Mar.	22	3.10	3.09	3.05	3.05	3.09	3.13	3.18	3.24	3.29	3.34	3.40	3.48	3.56	—	64
	23	3.10	3.17	3.08	3.08	3.11	3.14	3.19	3.25	3.30	3.35	3.40	3.47	3.55	—	28
	24	3.10	3.20	3.13	3.13	3.16	3.20	3.25	3.30	3.36	3.42	3.48	3.55	3.64	—	15
	28	3.10	3.00	3.05	3.11	3.16	3.20	3.25	3.30	3.37	3.43	3.50	3.57	3.66	—	20
	29	3.10	—	3.05	3.10	3.14	3.18	3.23	3.28	3.34	3.40	3.46	3.55	3.63	—	20
	30	3.10	—	3.05	3.10	3.14	3.18	3.23	3.29	3.35	3.41	3.47	3.55	3.63	—	8
	31	3.06	—	3.01	3.06	3.10	3.15	3.20	3.25	3.30	3.36	3.42	3.50	3.58	—	46
April	1	3.00	—	3.00	3.03	3.08	3.12	3.17	3.22	3.27	3.32	3.38	3.45	3.54	3.62	22
	2	3.00	—	2.95	3.02	3.07	3.12	3.16	3.20	3.27	3.32	3.38	3.45	3.54	3.62	8
	4	3.06	—	3.03	3.10	3.12	3.15	3.20	3.25	3.31	3.37	3.42	3.49	3.58	3.66	8
	5	3.06	—	3.00	3.05	3.10	3.15	3.20	3.25	3.31	3.36	3.41	3.48	3.57	3.65	10

CHEMICALS

DEMAND for compounding materials has not shown the increase which the spring season usually brings forth. Manufacturers of tires, footwear and mechanicals are still operating at low ebb while drug sundries are showing some signs of increased demand. A decided upward trend, however, is expected by the tire industry following the impetus given to the entire automobile trade by the introduction last week of the new Ford and Plymouth models. Current quotations remain unchanged.

ACCELERATORS

Organic				
A-1	lb.	.24	@	.27
A-5-10	lb.	.33	@	.36
A-7	lb.	.55	@	.59
A-11	lb.	.62	@	.66
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
A-32	lb.	.80	@	.95
Aldehyde ammonia, crystals	lb.	.65	@	.70
Altax	lb.			
Captax	lb			
Crylene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolyguanidine	lb.	.42	@	.44½
Diphenylguanidine	lb.	.30	@	.32½
Ethylidene aniline	lb.	.45	@	.47½
Formaldehyde aniline	lb.	.37½	@	.40
Heptene	lb.	.40	@	—
Hexamethylene-tetramine	lb.	.58½	@	.61
Lithex	lb.	.18	@	.20
Methylenedianiline	lb.	.37½	@	.40
Monex	lb.	3.25	@	—
Oxynone	lb.	.68	@	.80
Phenex	lb.	.50	@	.55
R & H 40	lb.	.40	@	.41
R & H 50	lb.	.40	@	.41
R & H 397	lb.	.75	@	.76
R-2	lb.	1.95	@	2.15
Safex	lb.	1.20	@	1.25
SPDX	lb.	.75	@	—
Super-Sulphur No. 1	lb.			
No. 2	lb.			
Tensilac, No. 39	lb.	.40	@	.42½
Tensilac, No. 41	lb.	.50	@	.52½
Thermio F	lb.	.50	@	.55
Thiocarbanilid, drums	lb.	.20	@	.22
TMTT	lb.	3.00	@	3.25
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.58	@	.60
Tuads	lb.			
Ureka	lb.	.75	@	1.00
Vulcanex	lb.			
Vulcone	lb.			
Vulcanol	lb.			
Z-88-P	lb.	.50	@	.60
Zimate	lb.			
Inorganic				
Lead, sublimed blue	lb.	.08¼	@	—
Lead, white	lb.	.08½	@	.08¾
Litharge, domestic	lb.	.06¼	@	.07
Magnesia, calcined, light	per 100 lb.	5.35	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)				
Blues				
Prussian	lb.	.35	@	.36
Ultramarine	lb.	.06	@	.32
Browns				
Sienna, Italian	lb.	.05½	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.30	@	.32
medium	lb.	.31	@	.33
dark	lb.	.34	@	.36
Chromium Oxide, bbl.	lb.	.34½	@	.35½
Reds				
Antimony crimson, 15/17	lb.	.40	@	.44
sulfur, free	lb.	.56	@	.66
golden, 15/17 F.S.	lb.	.20	@	.25
Indian English	lb.	.08	@	.11
Domestic (Maroon)	lb.	.11	@	—
Red oxide, pure	lb.	.10	@	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾	@	—
Whites				
Lithopone, Albalith	lb.	.04½	@	.04¾
Lithopone, Azolith	lb.	.04½	@	.04¾
Titanium oxide	lb.	.21	@	—
Titanox B	lb.	.06½	@	.07
Titanox C	lb.	.06½	@	.07
Zinc Oxide—American Process				
American Azo:				
ZZZ (lead free)	lb.	.05¾	@	.06
ZZ (leaded)	lb.	.05½	@	.05¾
Horsehead Lead Free Brand:				
Selected	lb.	.05¾	@	.06
Special	lb.	.05¾	@	.06
XX Red	lb.	.05¾	@	.06
XX	lb.	.05¾	@	.06
XX Green	lb.	.05¾	@	.06
Leaded Brand, Standard	lb.	.05½	@	.05¾
Sterling	lb.	.05½	@	.05¾
Superior	lb.	.05½	@	.05¾
Lehigh	lb.	.05¼	@	.05½
U. S. P., bbls.	lb.	—	@	.12¾
Kadox, black label	lb.	.09⅝	@	.09⅞
Blue label	lb.	.08⅝	@	.08⅞
Red label	lb.	.07⅛	@	.07½
Cryptone, No. 19	lb.	.06½	@	.06¾
Cryptone CB, No. 21	lb.	.06½	@	.06¾
XX Zinc Sulphide, bbls.	lb.	—	@	.13
St. Joe, black label	lb.	.05¾	@	.06
green label	lb.	.05¾	@	.06
red label	lb.	.05¾	@	.06
Zinc Oxide—French Process				
Anaconda, lead free	lb.	.05¾	@	.06
Anaconda, selected lead free	lb.	.06¼	@	.06½
Florence White seal, bbls.	lb.	—	@	.10⅞
Green seal	lb.	.09⅝	@	.09⅞
Red seal	lb.	.08⅝	@	.08⅞
Yellows				
Chrome	lb.	.16½	@	.17
Ocher, domestic	lb.	.01⅝	@	.02

BLACKS

Arrow "Aerfloted"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. work, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
Bone, powdered	lb.	.05½	@	.12½
Carbon, compressed	lb.	.03	@	.07
uncompressed	lb.	.03	@	.07
"Certified," Cabot				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Disperso" f.o.b. La.	lb.	.031	@	.071
f.o.b. Texas	lb.	.03	@	.07
Drop, bbls.	lb.	.05½	@	.14
"Excello," compressed	lb.	.04	@	.08
"Fumonex"	lb.	.02½	@	.06
"Gastex"	lb.	.02½	@	.06
Lampblack	lb.	.07	@	.10
"Micronex"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Supreme"	lb.	.03	@	.07
Thermatomic—"P 33"	lb.	—		—
"Thermax"	lb.	—		—
United, "Dixie" and "Kosmos"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Velvetex"	lb.	.02	@	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate, lump	lb.	.10½	@	.12
Asbestine	ton	13.40	@	14.00
Barium carbonate	ton	56.50	@	57.00
Barium Dust	lb.	.05	@	.06
Barytes southern off-color	ton	12.00	@	18.00
Western prime white	ton	33.00	@	—
Basofor	lb.	.04½	@	—
Bentonite	lb.	.02	@	.03
Blanc fixe dry f.o.b. works	ton	75.00	@	90.00
Carrara filler	lb.	.01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Chalk, precipitated				
Suprex white, extra lt.	ton	60.00	@	70.00
heavy	ton	45.00	@	55.00
Clay, Kaolin, domestic	ton	8.00	@	9.00
Aerfloted, Suprex	ton	6.50	@	8.00
Congaree	ton	9.00	@	—
Dark Blue Ridge	ton			
Dixie	ton			
Langford	ton			
Lexington	ton	10.00	@	22.00
Par	ton			
Tensulite		15.00	@	—
Glues, extra white	lb.	.20	@	.25
medium white	lb.	.16	@	.20
Kalite No. 1	ton	30.00	@	60.00
Kalite No. 3	ton	40.00	@	70.00
Magnesia, carbonate	lb.	.08¾	@	.11
Mica	lb.	.04½	@	—
Rotten Stone (powdered)	lb.	.02	@	.05
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	—	@	2.57
Talc, domestic	ton	12.00	@	15.00
Pyrax A	ton			
Whiting, commercial	cwt.	.85	@	1.00
English cliffstone	cwt.	1.50	@	1.70
Quaker	ton			
Sussex	ton			
Witco	ton	20.00	@	—
Zinc Carbonate	lb.	.09½	@	.10½
Zinc Stearate	lb.	.18½	@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00	@	42.00
Granulated M. R.	ton			
Hard Hydrocarbon	ton			
Parmr, solid	ton	28.00	@	48.00
Pioneer. MR, solid	ton	40.00	@	42.00
Pioneer-granulated	ton	50.00	@	52.00
R & H Hydro-Carbon	ton	27.05	@	29.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulfuric, 66 degrees	cwt.	1.60	@	1.95
Tartaric, crystals	lb.	—	@	.26½
Acids, Fatty				
Laurex	lb.	.15	@	.16
Stearex	lb.	.13	@	.17
Stearic, double pressed	lb.	.17	@	.22
Alkalies				
Caustic soda, 76%	cwt.	2.90	@	—
Soda ash, 58% C.L.	cwt.	1.17½	@	—
Oils				
Corn, refined, bbls.	lb.	.07	@	.08¾
Cottonseed, crule		—	@	.04½
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c.l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04¼	@	.04½
Fluxrite	lb.	.05½	@	.06½
Palm Lagos	lb.	.04	@	.05
Niger	lb.	.03½	@	.04
Para-Flux	gal.	.17	@	—
Petrolatum, white	lb.	.08	@	.08½
Pigmentaroil	gal.	.18	@	.23
Pine, steam distilled	gal.	.54	@	.61
destructively distilled	gal.	.54	@	.55
Witco Palm Oil	lb.	.07½	@	—
Witco Softener (f.o.b. wks.)	lb.	.02	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt. bbl.		7.00	@	—
Rosin, grade K, 280 lb. bbl.		—	@	4.60
Pigmentar	gal.	.18	@	.23
Tar Retort, 50 gal.	bbl.	13.50	@	15.00
Solvents				
Acetone, pure	lb.	—	@	.10
Alcohol, denatured, No. 1 bbls.	gal.	.28	@	.29
Benzol, 90%	gal.	.20	@	.21
Carbon, bisulfide	lb.	.05½	@	.06½
Carbon, tetrachloride	lb.	.06¼	@	.07
Dryolene (f.o.b. Okla.)	gal.	.10	@	.10½
Gasoline, steel bbls.	gal.	.16	@	—
Naphtha, solvent	gal.	.26	@	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09	@	—
Turpentine, spirits	gal.	—	@	.37¼
wood	gal.	—	@	.40
destructively distilled	gal.	.35	@	—
Waxes				
Beeswax, white	lb.	.34	@	.36
Carnauba	lb.	.26	@	.28
Ceresin, white	lb.	.10	@	.11
Montan, crude	lb.	.06½	@	.07
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Paraffin (c.l.—f.o.b. N. Y.)				
Yellow crude scale	lb.	.02½	@	—
White crude scale 124/126	lb.	.02½	@	—
Refned, 125/127	lb.	.03¾	@	—
Refined, 128/130	lb.	.03¾	@	—
Refined, 135/137	lb.	.05¼	@	—
Refined, 138/140	lb.	.07¼	@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.			
Powder	lb.			
Resin	lb.			
White	lb.			
Albasan	lb.	.70	@	.75
Antox	lb.			
B-L-E	lb.	.57	@	.60
Neozone	lb.			
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Retardex	lb.	.35	@	.40
Stabilite	lb.	.57	@	.62
Stabilite Alba	lb.	.70	@	.75
VGB	lb.	.55	@	.66

SPECIALTIES

Aromatics—Rodo	lb.			
Sunproof	lb.	.35	@	.37½
Sponge Paste	lb.	—	@	.30
Tonox	lb.	.56	@	.60

SUBSTITUTES

Black	lb.	.07	@	.09
White	lb.	.08	@	.14
Brown	lb.	.07	@	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½	@	.04½
Sulfur flour,				
Ref'n'd, 100% pure (bags)	cwt.	2.40	@	2.75
Commercial (bags	cwt.	1.75	@	2.10
Telloy	lb.			
Vandex	lb.			

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

WHILE rubber consumption gained during February, late reports indicate a retrenchment in March, so that the February figure may not appear as indicative of any sustained step-up in the industry. Imports of crude fell off and seem to reflect the voluntary restriction in production, which has set in in Malaya and the Dutch East Indies, as a logical reaction to the new low price levels established over the last three months.

The whole statistical picture shows a downward trend from the previous month, but in point of production this may have a salutary effect. New bottom price figures were reached during the fortnight, the decline being influenced largely by the announcement of the failure of the British and Dutch Governments to reach any agreement on restriction plans.

In spite of the introduction of new car models the automobile industry is not responding to any optimism and production continues along conservative schedules.

Latest figures covering imports and exports from the leading producing and consuming centers have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,328	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,238	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	289,178,733	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,572	7.42	471,543
1929:							
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,530,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.76	2,011	861,068	19.11	32,461
Oct.	38,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,507	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,793,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,273,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,174	1,028,653	14.47	36,819
July	35,182	10,553,944	13.39	2,807	759,260	12.08	32,375
Aug.	35,713	9,666,362	12.08	2,357	655,773	12.42	33,356
Sept.	35,350	8,460,812	10.68	1,514	430,772	12.70	33,866
Oct.	46,069	9,893,980	9.59	2,432	419,325	7.70	43,637
Nov.	29,401	5,700,086	8.66	1,300	271,348	9.32	28,101
Dec.	37,300	7,175,242	8.59	2,168	542,197	11.17	35,132
1931:							
Jan.	36,307	7,190,591	8.84	1,706	350,480	9.17	34,601
Feb.	34,005	6,564,969	8.62	1,799	357,078	8.86	32,206
Mar.	40,393	7,356,505	8.13	2,800	534,180	8.52	37,593
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,238	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,131	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.	43,435	4,742,218	4.72	1,403	198,284	6.31	43,435
Dec.	53,536	5,610,129	4.68	2,462	326,382	5.91	51,070
1932:							
Jan.	33,221	3,387,505	4.55	1,524	185,466	5.43	31,697
Feb.	27,959	2,690,250	4.29	1,915	222,584	5.19	26,044
Mar.							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

Jan.	29,638	32,196	31,518	34,403	43,002	36,194	28,557	27,962
Feb.	29,761	31,136	30,137	33,702	41,594	33,302	28,797	30,011
Feb.	29,761	31,136	30,137	33,702	41,594	33,302	28,797	——
Mar.	33,498	32,936	36,141	35,688	44,730	35,540	32,788	——
Apr	34,139	32,696	35,871	32,772	47,521	39,686	33,321	——
May	35,322	29,364	34,592	37,333	49,233	39,386	37,817	——
June	35,822	28,598	33,801	37,676	43,227	34,195	37,916	——
July	36,053	27,577	29,219	37,407	41,526	29,508	31,937	——
Aug.	35,909	34,533	33,460	42,927	38,274	30,850	27,586	——
Sept	31,691	32,904	27,214	39,882	34,707	25,515	23,638	——
Oct.	29,047	29,936	26,790	40,857	34,800	27,516	22,277	——
Nov.	28,253	28,080	26,792	37,461	27,659	23,691	22,943	——
Dec.	28,748	26,293	25,492	31,232	23,531	21,687	21,409	——
Totals	388,481	366,149	371,027	441,340	469,804	375,980	348,986	——

Figures on Quarterly Basis

Quarter	1925	1926	1927	1928	1929	1930	1931	1932
Jan./Mar.	95,263	94,301	99,216	103,558	128,565	101,610	89,652	——
Apr./June	104,099	87,109	103,242	103,500	139,292	112,229	107,755	——
July/Sept.	99,493	93,793	89,210	117,573	113,746	85,261	83,632	——
Oct./Dec.	85,789	83,212	80,860	117,597	84,872	72,020	65,645	——
Totals	384,644	358,415	372,528	442,227	466,475	371,120	346,684	——

Note—The Rubber Association estimates its monthly rubber consumption figues to be 80 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Thousands of Barrels of 42 Gallons)

	1930	1931	1932		1930	1931	1932
January	25,731	26,844	26,845	July	38,256	39,459	——
February	26,509	26,133	——	August	37,433	39,459	——
March	31,029	31,037	——	September	37,823	36,670	——
April	34,549	33,400	——	October	32,267	35,051	——
May	36,497	35,716	——	November	30,984	30,640	——
June	35,902	38,375	——	December	29,094	30,529	——

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1930																																
January	—	15¾	15⅝	15⅝	—	15⅝	15⅝	15	14⅝	14½	14⅝	—	14⅝	14¾	14¾	14⅝	15½	15½	—	14⅝	14⅝	14½	15¼	15¾	15¾	15¾	15⅝	15⅝	15¾	15¾	16¼	15⅝
February	—	15¾	15	15	15¾	15⅝	15⅝	15⅝	15⅝	15	15	16	15⅝	15⅝	15⅝	15⅝	16	16	16	15⅝	16	15½	—	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	—	16⅛	15⅝
March	—	15⅝	15⅝	15⅝	15	15¼	15¼	15¼	15¼	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛
April	—	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛	15⅛
May	—	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝
June	—	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝
July	—	12¼	12	12	—	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
August	—	10⅝	—	10½	10½	10½	10½	10½	10½	10½	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
September	—	9⅝	9⅝	9⅝	9	9	8½	8½	8½	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝
October	—	7⅞	8¼	8	—	8⅛	8⅛	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
November	—	8⅝	8¼	9¼	—	8⅝	9¼	—	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛
December	—	9⅛	9⅛	9⅛	9⅛	9⅛	—	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛
1931																																
January	—	8⅝	8⅝	8⅝	8½	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛
February	—	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝	7⅝
March	—	—	7⅝	8⅝	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛
April	6⅝	6⅝	—	—	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝
May	6	6	—	—	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛
June	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜
July	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜
August	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝
September	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛
October	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾
November	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½
December	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜
1932																																
January	—	—	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛	4⅛
February	—	4⅜	4⅜	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½	3½
March	—	3½	3½	3½	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
April	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Month	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24	8.34
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85	7.70
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34	7.71
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	14.93	6.48
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	14.24	6.49
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	12.45	6.35
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	11.24	6.37
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59	9.96	5.38
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	8.28	5.08
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	8.20	4.87
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	9.01	4.65
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	9.05	4.64
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	11.98	6.17

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Jan.	Feb.	Mar.	Apr.	Day	Jan.	Feb.	Mar.	Apr.
1	—	2⅞	2¼	1⅞	17	—	2⅝	2⅛	—
2	—	2⅞	2¼	1⅞	18	3	2⅝	2⅛	—
3	—	2¾	2¼	—	19	3	2¾	2	—
4	3⅛	2¾	2⅜	1⅞	20	3	2¾	—	—
5	3⅛	2¾	2⅜	—	21	3	—	1⅞	—
6	3⅛	2¾	—	—	22	3	2¾	1⅞	—
7	3⅛	—	2⅜	—	23	3	2⅝	2	—
8	3⅛	2¾	2⅜	—	24	—	2⅝	2	—
9	3⅛	2¾	2¼	—	25	3	2½	—	—
10	—	2¾	2¼	—	26	3	2½	—	—
11	3⅛	2¾	2⅜	—	27	3	2½	—	—
12	3⅛	2¾	2⅜	—	28	3	—	—	—
13	3⅛	2⅞	—	—	29	2⅞	2½	1⅞	—
14	3⅛	—	2⅜	—	30	2⅞	—	1⅞	—
15	3⅛	2¾	2¼	—	31	—	—	1⅞	—
16	3⅛	2⅞	2¼	—					

Average Monthly Price Per Pound

Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence	Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence
Jan.	9.942	7.471	4.160	3.052	Aug.	10.505	4.880	2.385	——
Feb.	11.875	7.948	3.823	2.760	Sept.	10.160	4.075	2.524	——
Mar.	12.135	7.595	3.822	2.047	Oct.	9.620	4.023	2.898	——
Apr.	10.490	7.391	3.082	——	Nov	8.442	4.440	2.890	——
May	10.717	6.926	3.035	——	Dec.	7.958	4.516	3.115	——
June	10.580	6.195	3.082	——	Average for				
July	11.065	5.648	3.048	——	Year	10.291	5.926	3.155	——

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Feb.	Mar.	Apr.	Day of Month	Feb.	Mar.	Apr.	Day of Month	Feb.	Mar.	Apr.
1	6.80	7.00	6.30	11	6.70	7.05	——	21	——	6.85	——
2	6.60	7.20	6.25	12	——	7.05	——	22	——	6.70	——
3	6.60	7.10	6.40	13	6.85	——	——	23	6.95	6.55	——
4	6.65	7.15	——	14	——	6.95	——	24	7.05	6.60	——
5	6.65	7.15	——	15	6.85	6.95	——	25	7.15	——	——
6	6.75	——	——	16	6.85	6.95	——	26	7.05	——	——
7	——	7.10	——	17	6.90	7.60	——	27	7.05	——	——
8	6.70	7.05	——	18	7.05	7.00	——	28	——	6.30	——
9	6.65	7.05	——	19	7.05	6.95	——	29	7.00	6.20	——
10	6.55	7.05	——	20	7.05	——	——	30	——	6.40	——
								31	——	6.20	——

Average Monthly Price Per Pound

	1929 Cents	1930 Cents	1931 Cents	1932 Cents		1929 Cents	1930 Cents	1931 Cents	1932 Cents
Jan.	20.22	17.21	10.27	6.65	Aug.	18.62	12.03	7.21	——
Feb.	20.21	15.62	10.96	6.85	Sept.	18.83	10.85	6.52	——
Mar.	20.19	15.13	10.90	6.86	Oct.	18.46	10.63	6.32	——
Apr.	20.29	16.39	10.19	——	Nov.	17.53	10.96	6.44	——
May	19.41	16.43	9.38	——	Dec.	17.28	10.02	6.24	——
June	18.74	14.48	9.05	——	Average for				
July	18.62	13.10	9.28	——	Year	19.03	13.57	8.56	——

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	76,342	131,744	209,487	93,330	61,863	56,187	169,672	193,607	265,674
Feb.	90,058	143,863	212,833	75,790	63,404	63,680	165,848	207,267	276,513
Mar.	100,536	141,843	217,804	67,065	63,646	63,133	167,601	205,489	280,937
Apr.	107,659	148,272	228,382	65,798	63,261	56,700	173,457	211,533	285,082
May	97,192	146,179	220,799	65,793	68,168	73,564	162,985	214,347	294,363
June	92,061	151,551	225,536	54,668	58,657	69,421	146,729	210,209	294,957
July	92,535	152,001	234,822	46,145	58,326	66,873	138,680	210,327	301,695
Aug.	90,769	158,607	240,816	49,423	61,168	61,469	140,192	219,772	302,285
Sept.	84,362	169,927	254,324	58,758	60,923	62,420	143,120	230,851	316,744
Oct.	88,483	185,470	273,456	59,180	51,122	68,427	147,663	236,593	341,883
Nov.	92,219	189,925	292,493	62,358	52,538	77,443	154,577	242,463	369,936
Dec.	118,609	200,998	322,826	62,388	56,035	53,940	180,997	257,033	376,766

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1929	1930	1931	At end of	1929	1930	1931
Jan.	25,191	60,434	81,093	July	30,080	81,048	81,317
Feb.	25,554	64,557	82,265	Aug.	35,605	80,931	81,560
Mar.	28,214	68,923	84,736	Sept.	42,188	83,329	79,692
Apr.	31,368	74,676	86,982	Oct.	47,803	77,647	76,778
May	31,290	77,312	86,726	Nov.	52,454	76,887	73,911
June	31,025	80,260	83,071	Dec.	54,304	78,013	69,470

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1931					
October	79,246	78,735	78,704	78,465	76,698
November	76,323	75,256	74,322	73,207	
December	72,904	72,785	71,400	70,043	
1932					
January	69,504	68,967	68,272	67,545	67,157
February	67,410	67,824	67,314	65,923	
March	65,459	65,121	65,014	64,461	
April	63,813				

Stocks in Liverpool

1931					
October	54,677	55,518	55,276	55,797	56,816
November	56,284	55,933	56,339	56,366	
December	56,901	57,157	57,116	56,908	
1932					
January	57,718	57,652	58,662	58,328	58,182
February	59,155	59,874	59,514	59,868	
March	60,288	60,776	60,922	60,775	
April	61,010				

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1929	1930	1931	1932	End of	1929	1930	1931
Jan.	29,617	39,727	48,802	48,850	July	33,859	45,459	51,203
Feb.	32,373	44,371	49,283	46,954	Aug.	30,834	48,132	48,971
Mar.	29,437	45,657	49,590	——	Sept.	32,138	44,015	47,025
Apr.	26,474	48,473	45,868	——	Oct.	33,770	39,930	52,132
May	30,764	44,715	44,278	——	Nov.	30,963	41,674	46,497
June	30,403	42,451	47,517	——	Dec.	35,548	45,963	45,795

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
1931:					
Jan.	41,620	24,500	3,168		5,124
Feb.	43,027	24,580	3,326		5,404
Mar.	40,227	21,990	3,622	3,857	4,843
Apr.	37,103	18,500	3,659		5,137
May	37,171	17,770	3,380		4,896
June	36,748	18,440	3,219	3,518	4,894
July	40,377	19,960	3,111		4,548
Aug.	40,606	18,880	3,204		4,571
Sept.	37,114	16,200	3,293	2,763	4,972
Oct.	35,381	17,800	3,100		5,465
Nov.	39,193	19,570	2,799		5,506
Dec.	41,219	20,140	2,568	3,607	5,576
1932:					
Jan.	43,938	20,000	3,065		6,342
Feb.	43,695				

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,020	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.5	1929	24,141,502	80.3
1926	24,199,524	78.3	1930	17,364,096	80.1
1931			1931		
January	681,301	67.9	July	812,642	74.0
February	1,010,774	73.9	August	924,236	80.8
March	1,425,336	81.4	September	504,879	70.4
April	1,717,652	79.9	October	281,749	62.7
May	1,508,349	83.7	November	638,138	78.0
June	1,084,707	77.8	December	714,037	80.1
1932					
January	810,759	89.0			
February	726,172	84.3			

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	45,259	51,633	60,845	61,237	64,439	77,944	68,726	50,965
Shipments	45,204	50,120	59,262	59,002	64,059	74,296	69,395	53,638
Inventory[2]	5,772	7,427	8,142	10,456	10,264	13,624	11,838	9,003

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,301	4,485	3,675	6,211	4,406	3,744	12,855	11,924	8,957
Feb.	6,479	4,555	3,985	4,951	4,195	3,402	14,525	11,410	9,536
Mar.	7,049	4,863	4,663	6,289	4,717	4,122	15,329	12,513	10,014
Apr.	7,391	5,648	4,944	6,838	5,089	4,932	15,870	13,076	10,031
May	7,636	5,717	5,679	6,735	5,216	5,415	16,733	13,432	10,312
June	6,347	5,122	5,672	6,800	5,294	5,572	16,497	13,277	10,447
July	6,320	3,991	4,926	7,364	5,447	5,462	15,034	11,812	9,919
Aug.	5,693	4,166	3,906	7,354	5,175	4,960	13,337	10,848	8,896
Sept.	4,460	3,365	3,172	5,623	4,405	3,932	12,070	9,812	8,158
Oct.	4,611	3,582	2,974	4,649	3,499	2,852	12,042	9,803	8,300
Nov.	3,378	2,654	2,500	3,355	2,834	2,887	12,127	9,595	7,919
Dec.	3,057	2,814	2,643	3,237	3,361	2,871	11,838	9,003	7,744

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	60,116	70,706	82,614	76,618	70,823	80,180	68,829	52,420
Shipments	59,072	68,106	81,004	71,591	72,896	77,127	70,592	54,938
Inventory[2]	8,425	11,052	11,313	16,200	13,692	16,117	12,807	9,999

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,109	4,607	3,623	6,789	4,857	4,062	14,424	12,704	9,439
Feb.	6,346	4,634	3,916	4,948	4,337	3,400	15,936	13,036	9,921
Mar.	7,000	4,941	4,450	6,317	4,727	3,789	16,641	13,179	10,475
Apr.	7,157	5,510	4,617	6,716	4,848	4,636	17,000	13,784	10,413
May	7,181	5,535	5,413	6,598	5,074	5,281	17,745	13,852	10,549
June	6,542	4,950	5,358	6,515	5,265	5,397	17,294	13,612	10,504
July	5,793	3,939	4,955	7,605	5,855	5,831	15,311	11,657	9,589
Aug.	5,481	4,796	4,435	7,672	5,762	5,301	13,072	10,737	8,774
Sept.	5,190	3,817	3,449	5,859	4,541	4,150	12,585	10,065	8,095
Oct.	5,000	3,951	3,077	4,689	3,472	2,813	12,802	10,517	8,321
Nov.	3,544	2,680	2,443	3,480	2,788	2,594	12,845	10,313	8,119
Dec.	3,484	3,060	2,597	3,404	3,412	2,767	12,807	9,999	7,922

(1) **Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.**

(2) **Held by manufacturers at end of period indicated.**

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1926	4,298,799	3,808,753	490,046	205,002	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931							
Jan.	171,848	138,317	33,531	6,496	4,552	1,944	178,344
Feb.	219,940	180,419	39,521	9,871	7,529	2,342	229,811
Mar.	276,405	231,244	45,161	12,993	10,483	2,510	289,398
Apr.	336,939	285,693	50,015	17,159	14,043	3,116	354,098
May	317,163	269,420	45,695	12,738	10,621	2,117	329,901
June	250,640	208,158	41,304	6,835	5,583	1,252	257,475
July	218,490	183,107	35,854	4,220	3,151	1,069	222,710
Aug.	187,197	155,425	31,772	4,544	3,426	1,118	191,741
Sept.	140,566	109,228	31,338	2,646	2,108	538	143,212
Oct.	80,142	58,415	21,727	1,440	761	679	81,582
Nov.	68,867	49,184	19,683	1,247	812	435	70,114
Dec.	121,533	97,897	23,636	2,432	408	2,024	123,965
Total	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932							
Jan.	119,344	98,785	20,541	3,731	3,112	619	123,075
Feb.	117,413	94,110	23,303	5,477	4,494	983	126,621

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[4]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,487
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1930:															
Jan.	52,535	11,773	40,762	7,741	1,560	791	642	386	5,709	7,831	8,928	856	1,837	585	77,628
Feb.	48,947	12,960	35,987	8,055	1,245	847	642	469	6,900	7,191	11,414	944	1,787	480	75,961
Mar.	47,320	12,236	35,084	6,617	1,219	976	642	391	5,796	6,612	11,214	643	1,674	536	71,314
Apr.	43,803	14,627	29,176	4,444	856	1,026	502	366	4,802	6,326	12,724	433	1,201	636	62,486
May	49,016	13,253	35,763	5,968	975	917	502	350	6,352	6,661	12,041	753	1,383	555	72,220
June	36,607	12,120	24,487	4,577	778	1,040	201	392	4,728	4,776	9,512	425	974	551	52,441
July	41,347	12,759	28,588	3,868	792	1,087	600	327	6,022	5,891	9,770	648	810	418	58,821
Aug.	47,802	10,304	37,498	7,077	600	740	600	335	5,892	7,197	9,520	394	809	382	71,044
Sept.	48,529	8,087	40,442	7,966	343	680	600	289	5,960	6,358	7,302	527	1,093	474	72,034
Oct.	47,770	7,312	40,458	7,681	591	598	650	300	5,916	6,956	6,852	667	669	449	71,287
Nov.	41,281	7,774	33,507	6,042	864	631	600*	311	5,334	6,401	8,001	654	658	238	63,241
Dec.	42,086	9,671	32,415	6,934	1,049	976	600*	335	6,254	7,196	8,476	721	1,365	353	66,674
1931:															
Jan.	41,579	11,029	30,550	7,039	1,315	770	542	424	5,923	7,348	10,328	1,218	994	295	66,746
Feb.	41,951	9,672	32,279	6,365	1,041	945	542	409	4,869	7,206	9,001	1,018	1,271	217	65,163
Mar.	48,589	12,009	36,580	5,881	1,209	930	542	536	5,434	7,104	11,258	1,233	1,338	430	72,475
Apr.	43,453	9,977	33,476	4,333	641	788	455	340	6,473	6,063	8,759	327	629	333	62,617
May	44,281	10,479	33,802	4,242	622	869	455	413	7,373	6,799	10,955	793	1,110	382	67,815
June	39,397	12,115	27,282	5,098	1,086	1,138	455	337	5,856	6,696	11,380	1,019	621	351	61,319
July	43,658	11,995	31,663	4,517	715	801	536	316	6,671	7,511	10,711	859	1,565	186	66,051
Aug.	42,832	9,063	33,769	3,763	406	692	535	210	6,397	7,044	8,641	1,097	856	241	63,651
Sept.	44,336	8,369	35,967	4,029	169	701	535	218	5,577	7,358	8,389	917	745	183	64,788
Oct.	45,911	9,955	35,956	5,547	286	872	500*	338	8,086	7,882	9,547	934	1,284	238	71,467
Nov.	48,012	9,529	38,483	4,609	408	830	500*	390	7,351	8,174	7,981	731	872	233	70,562
Dec.	35,741	11,314	24,427	6,346	572	1,115	500*	287	5,942	8,562	9,059	1,550	836	203	59,399
1932:															
Jan.	44,538	10,304	34,234	4,570	732	756	500*	457	5,155	8,815	8,703	1,000	831	200	65,197
Feb.	42,008	8,008	34,000	4,472		696		334				1,096	352		

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,178
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1930:															
Jan.	44,911	11,106	4,207	3,862	2,842	2,805	919	826	332	612	209	552	200*	577	73,951
Feb.	40,792	10,923	4,482	3,697	2,250	1,386	1,385	2,705	457	1,143	188	315	200*	289	70,162
May	40,012	9,862	5,233	4,379	2,593	2,699	1,279	1,153	975	678	358	322	200*	263	74,676
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	929	673	1,431	158	461	200*	255	76,834
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,645	64	1,250	230	274	200*	282	70,002
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,574	67	691	343	507	200*	282	65,569
July	32,785	7,650	3,311	3,449	3,347	1,206	587	567	84	939	172	756	200*	342	55,395
Aug.	34,513	8,369	3,953	3,515	2,108	2,170	886	149	265	888	37	747	200*	450	58,250
Sept.	34,373	16,016	5,285	4,089	1,578	2,606	1,279	1,373	414	824	221	817	200*	411	69,486
Oct.	44,385	9,095	7,403	3,747	1,942	3,951	2,460	2,782	609	769	439	1,132	200*	351	79,265
Nov.	28,437	-250	13,662	3,074	2,128	4,003	2,510	2,140	464	596	364	1,180	200*	343	58,851
Dec.	35,202	12,249	7,149	3,105	1,347	4,104	2,815	544	950	814	205	647	200*	673	70,004
1931:															
Jan.	34,873	9,730	5,954	3,847	1,709	2,861	1,036	1,775	601	986	348	464	240	635	65,059
Feb.	32,572	12,226	4,510	3,374	1,927	3,264	1,393	1,022	495	785	157	476	201	366	62,768
Mar.	37,960	12,335	4,886	3,545	3,012	2,323	418	2,531	435	862	346	400	392	507	69,452
Apr.	42,212	9,440	4,346	3,054	2,070	3,478	528	1,450	457	515	333	495	208	324	68,910
May	33,271	8,212	2,880	3,231	2,748	3,755	1,023	1,034	884	1,153	86	495	180	711	58,663
June	43,730	5,636	4,002	3,504	2,112	2,988	1,462	3,279	1,112	1,058	272	577	207	607	70,546
July	42,293	5,366	3,301	3,226	2,592	3,065	809	3,141	627	1,507	41	429	145	1,074	67,816
Aug.	36,709	5,030	3,393	2,889	2,304	3,780	812	3,137	283	955	—57	321	160	413	60,129
Sept.	37,571	5,468	4,420	4,227	1,585	5,556	693	2,335	269	1,015	191	571	99	499	64,449
Oct.	39,820	5,775	3,909	3,220	1,567	3,980	571	4,076	765	792	185	710	193	695	66,258
Nov.	43,659	2,550	2,669	2,621	1,233	3,340	545	2,417	934	729	183	745	297	954	62,876
Dec.	51,323	4,402	2,696	2,950	2,452	5,093	859	4,474	787	652	135	677	283	932	77,715
1932:															
Jan.	32,028	5,065	2,588	3,303	1,746	5,782	627		622		479	840	462		
Feb.	26,483														

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620 (2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1930	42,681,000	178,059,000	29,514,000	58,465,000
1930:				
December	1,909,000	13,101,000	3,021,000	3,386,000
1931:				
January	2,206,000	12,973,000	2,481,000	3,599,000
February	2,184,000	13,156,000	2,724,000	3,711,000
March	2,769,000	14,661,000	2,292,000	4,412,000
April	3,381,000	15,408,000	2,692,000	4,617,000
May	3,050,000	15,474,000	2,885,000	4,231,000
June	3,212,000	17,093,000	3,177,000	3,879,000
July	3,337,000	15,361,000	2,864,000	3,706,000
August	3,787,000	16,293,000	2,933,000	3,356,000
September	4,692,000	15,827,000	2,880,000	3,015,000
October	4,112,000	14,567,000	2,610,000	2,678,000
November	2,529,000	11,455,000	2,840,000	2,300,000
December	2,074,000	14,138,000	3,639,000	

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	3,332	2,213,964	—	—
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	—	—
1921	58	26,945	814	1,077,859	1,745	351,893	—	—
1922	127	57,040	812	978,765	2,335	403,812	—	—
1923	1,155	542,227	700	898,524	4,565	853,308	—	—
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,208	411,692	5,777	1,019,010	4,650	884,355
1931:								
Jan.	—	—	46	31,870	355	58,897	291	70,708
Feb.	—	—	17	13,801	511	114,100	369	89,470
Mar.	—	—	66	23,568	625	127,803	395	75,285
Apr.	—	—	219	69,284	676	140,309	372	73,867
May	—	—	120	44,025	205	36,086	318	82,202
June	—	—	245	79,786	681	123,616	706	129,496
July	—	—	67	20,777	331	64,493	583	104,868
Aug.	—	—	73	30,207	652	100,536	364	60,358
Sept.	—	—	126	35,174	407	65,232	439	72,443
Oct.	—	—	100	13,846	415	75,219	267	43,238
Nov.	—	—	36	11,539	276	50,062	265	40,649
Dec.	—	—	93	37,815	643	62,657	282	41,771
1932:								
Jan	—	—	54	14,095	633	81,396	331	40,613
Feb.	—	—	100	24,702	558	84,914	439	52,183

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

		Consumption					Consumption			
Year	Production	Tons	% to Crude	Stocks*	Year	Production	Tons	% to Crude	Stocks*
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,334	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,524	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1925	132,930	137,105	35.6	13,203	1930	157,967	153,497	40.8	22,000
1930:									
Jan.	15,010	17,454	47.6	24,241	July	12,322	12,384	42.3	23,873
Feb.	15,846	14,559	44.5	24,243	Aug.	12,047	10,985	35.9	22,980
Mar.	17,400	15,241	42.2	24,415	Sept.	11,433	10,480	41.4	21,996
Apr.	17,828	16,904	42.0	24,587	Oct.	12,349	10,724	39.8	21,145
May	17,812	17,052	42.7	23,856	Nov.	10,763	8,816	37.5	24,007
June	15,714	14,063	40.8	24,449	Dec.	10,073	8,449	39.3	24,008
1931:									
Jan.	10,349	10,728	37.6	22,429	July	11,393	11,447	35.8	17,720
Feb.	10,871	10,800	37.5	18,878	Aug.	10,110	9,972	36.2	17,165
Mar.	12,928	12,524	38.3	18,375	Sept.	9,629	8,932	37.6	17,226
Apr.	13,267	11,745	35.0	18,356	Oct.	9,482	8,126	36.6	17,741
May	13,478	13,105	34.6	18,088	Nov.	7,892	7,492	32.6	17,662
June	14,066	13,045	34.4	18,505	Dec.	8,876	6,812	31.9	19,257
1932:									
Jan.	8,753	8,440	30.2	18,712					
Feb.	8,731	8,332	27.7	18,659					

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,869 tons in 1929.
(Rubber Manufacturers' Association figures raised to 100%)

REVIEW DESK

Books, New Publications, Catalogues, Etc.

RUBBER LATEX. Circular Letter LC-321, Bureau of Standards, Washington, D. C. 35 pp. Free distribution. Feb. 25, 1932.

The pamphlet is intended to give general information on the subject of rubber latex and to direct interested parties to the sources from which special or detailed information may be obtained. Part I is a brief description of the production, composition and properties of latex and its application in manufacturing processes. Part II is a bibliography on the subject of latex, covering publications over the period from 1927 to 1931, and is very complete and comprehensive.

ZINC PIGMENTS FOR RUBBER. Published by the New Jersey Zinc Company, 160 Front Street, New York City, N. Y. For free distribution. 422 pp. Feb., 1932.

The booklet is a review of the application of zinc oxide in the compounding of rubber goods. Miscellaneous uses are indicated under the detailed description of the various brands of zinc oxide, marketed by the company. The booklet is of convenient pocket size and is punched to fit a standard size note book.

SYMPOSIUM ON RUBBER. American Society for Testing Materials, Phila., Pa. 116 pp. March, 1932. For free distribution.

The booklet includes the papers presented at the regional meeting of the Society, held at Cleveland, March 9, 1932. Abstracts of all the papers were printed in THE RUBBER AGE, February 10, 1932. It is well illustrated with photographs and charts.

NEUZEITLICHE REIFENREPARATEUREN—HANDBUCH FÜR REPARATEURE. By F. Grobowsky. Published by Union Deutsche Verlagsgesellschaft Zweigniederlassung. Berlin, S. W. 19, Germany. 1932. 185 pp. Price RM 12.

This handbook is profusely illustrated and contains minute instructions on the care and repair of tires and tubes. It describes in detail the equipment required in an up-to-date tire repair shop and is of particular interest not only to vulcanizers but also to the personnel in garages, gas stations, and auto repair shops.

PRECISION MEASURING INSTRUMENTS. Published by Federal Products Corporation. Providence, R. I. 62 pp. 1932. For free distribution.

Catalog of the dial indicators and precision measuring instruments marketed by the company, with detailed specifications of each device and complete descriptions. Illustrated.

EIGHTH REPORT ON NATIVE RUBBER CULTIVATION. Third Quarter, 1931. Prepared by the Division of Agricultural Economics of the Information Service for Agriculture and Fisheries, Netherlands East Indian Department of Agriculture, Industry and Commerce. Batavia, D.E.I. 14 pp. December, 1931.

The pamphlet is the latest of a series of reports dealing with the developments in native rubber production in the Dutch East Indies and carries the latest official statistics. It takes up in detail the production in various areas including Acheen, Tapanoeli and the Riouw archipelago.

BIBLIOGRAPHY OF BIBLIOGRAPHIES ON CHEMISTRY AND CHEMICAL TECHNOLOGY. Bulletin of the National Research Council, No. 86. 150 pp. 1932. $1.50.

As the title indicates the work is a compilation of bibliographies, published as separates, or at the end of books or magazine articles, or as footnotes to the same, on the numerous aspects of pure and applied chemistry. Each entry gives the name of the author or compiler, and title and place of publication. The entries are conveniently classified under subject headings, alphabetically arranged. There are numerous references pertaining to rubber chemistry and technology.

BRAIDING MACHINERY. Catalog No. 32. Published by the New England Butt Company, Providence, R. I. 36 pp. 1932. For free distribution.

Catalog of the machines marketed by the company, with full details of performance of various models, descriptions and specifications. Fully illustrated with photographs, diagrams, charts and tables.

CONTROL OF QUALITY AND COSTS IN BATCH MIXING AND COMPOUNDING OF RUBBER AND HEAVY PLASTICS. Bulletin No. 167. Published by Farrel-Birmingham Company, Ansonia, Conn. 6 pp. 1932. For free distrbution.

Production data on the application of Banbury mixers in rubber compounding, with diagrams and detailed description of operation.

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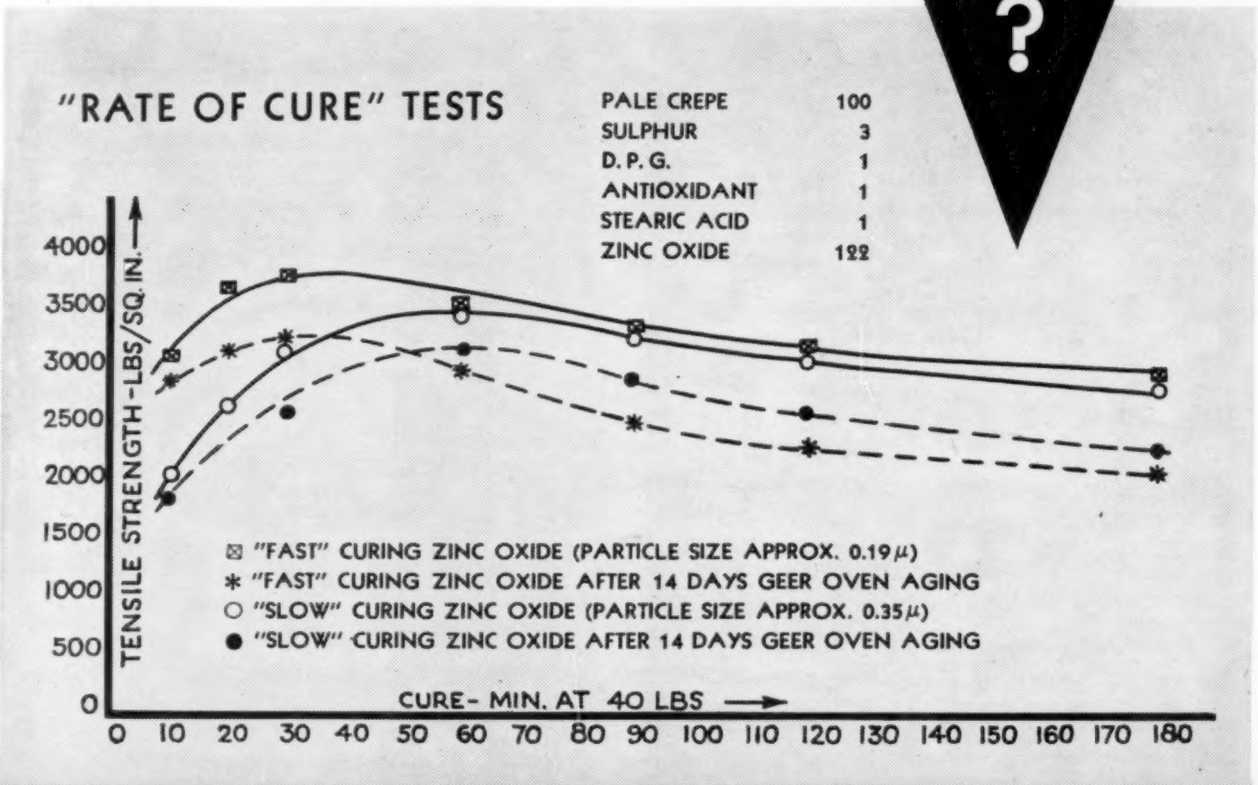
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TENSILE STRENGTH-LBS/SQ. IN.
4000
3500
3000
2500
2000
1500
1000
500
0
"FAST" CURING ZINC OXIDE (PARTICLE SIZE APPROX. 0.19μ)
"FAST" CURING ZINC OXIDE AFTER 14 DAYS GEER OVEN AGING
"SLOW" CURING ZINC OXIDE (PARTICLE SIZE APPROX. 0.35μ)
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